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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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THE SIXTY-NINTH ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN NEW ORLEANS, LA., DURING WEEK OF SEPTEMBER 5, 1921

FOR R. R. TRANSPORTATION NOTES SEE P. XI, ADVERTISING DEPARTMENT, THIS ISSUE

The 1921 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in New Orleans during Convention Week

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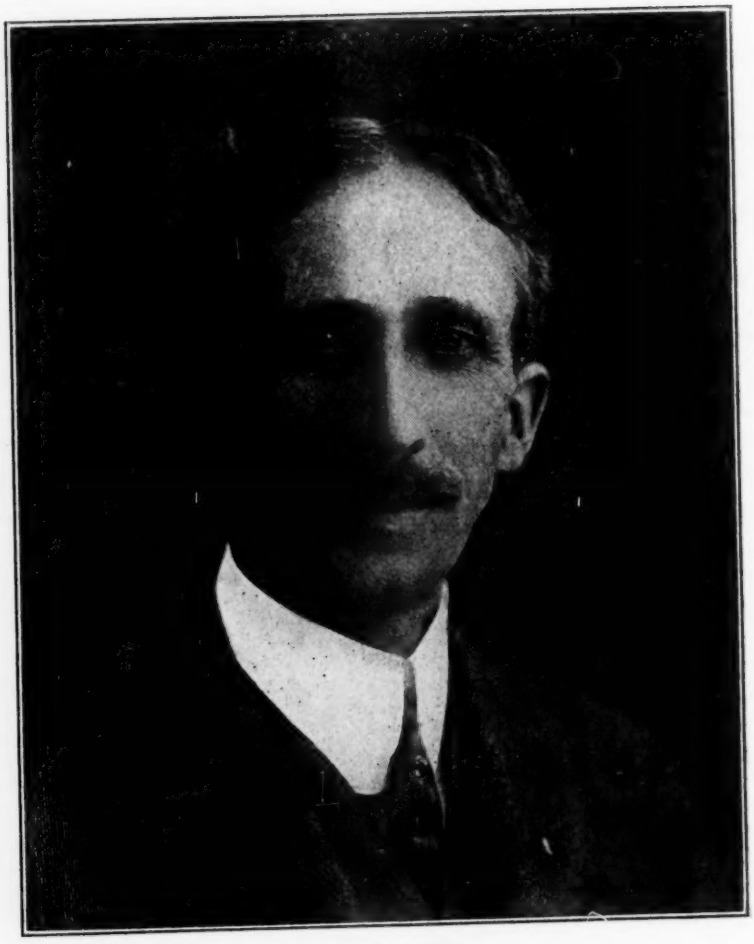
WILBER J. TEETERS

IOWA CITY, IOWA

President of American Conference of Pharmaceutical Faculties, 1920-1921



WILBER J. TEETERS

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. X JULY 1921 NO. 7

WILBER JOHN TEETERS.

Wilber John Teeters was born at Alliance, Ohio, October 10, 1866. He attended the public schools of Alliance and taught country and public schools for several years. He was graduated from Mount Union College, Alliance, Ohio, receiving the degree of Bachelor of Science in 1893, and from the University of Michigan, receiving the degree of Pharmaceutical Chemist in 1895. In 1897 Mount Union College conferred the degree of Master of Science upon him.

After graduation from the University of Michigan, Professor Teeters was appointed demonstrator of chemistry at the University of Iowa, which position he held until 1901, when he was transferred to the College of Pharmacy. In 1902 he was made director of the pharmaceutical laboratory and in 1905 chosen dean of the pharmaceutical faculty.

Professor Teeters is a member of the Sigma Alpha Epsilon fraternity and the scientific fraternity Phi Delta Chi. He is also a member of the Iowa Pharmaceutical Association, the American Pharmaceutical Association and a Fellow of the American Association for the Advancement of Science.

He has always been active in state and national pharmaceutical organizations and has served the American Pharmaceutical Association as chairman and secretary of several of its sections at various times. He was secretary of the American Conference of Pharmaceutical Faculties from 1913 to 1917, and the printed records of this body during this period evidence his efficient and careful work.

On the campus at the University of Iowa he is the senior dean in point of service, and is held in high esteem and affection by faculty and students alike. Because of his excellent judgment his advice is frequently sought in University administrative affairs. For years he has been a member of the more important Senate Boards including, until recently, the Board of Control in Athletics. He is now the chairman of the University Social Committee.

Professor Teeters is the president of the American Conference of Pharmaceutical Faculties, 1920–1921. R. A. K.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE SERVICE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE foundation for successful organization is service. In proportion to the service it renders to its members—service which they desire and appreciate—will any organization prosper. Efforts to enlarge the membership of an organization, no matter how well planned and vigorously carried on, must fail unless the service given by the organization appeals to its members as being worth while.

The American Pharmaceutical Association in common with other organizations has been criticized at various times as falling short of its possibilities in the service it afforded to its members and to pharmacy. Such criticisms when constructive are helpful, nor has the Association failed to accept and profit by them. A glance over its history bears out this statement. Organized seventy years ago primarily for the purpose of securing the adoption of uniform standards for imported drugs, its scope was quickly extended to include other objects in which pharmacists were interested, particularly along educational and scientific lines. In 1873 was published its first REPORT on the Progress of Pharmacy, a service that has been continued yearly ever since, and which has resulted in the preparation of a series of the most complete pharmaceutical abstracts published in the English language.

In 1887 the Association had developed to such an extent that it was decided to divide its program into a number of sections, and thus sprang into being the Sections on Commercial Interests, Scientific Papers, Pharmaceutical Education and Pharmaceutical Legislation (the last two being united later as the Section on Education and Legislation). In 1900 the Section on Practical Pharmacy and Dispensing was created; in 1904 the Section on Historical Pharmacy was added, and in 1912 the Women's Section made its appearance.

Meanwhile, the business of the Association, which at first was handled by the general sessions, had later, in 1880, been placed in the hands of a Council, consisting of the general officers, the section chairmen, and nine elected members, to which was later added a representative of each of the local branches. In 1919 an Executive Committee of the Council was created.

The Local Branches inaugurated in 1905, and added to from time to time, have afforded a means of organization for the members into local groups and have proved a considerable source of strength.

The activities of the Association found expression in the publication of its PROCEEDINGS, beginning with 1852, and succeeded by the YEAR BOOK in 1912, and its BULLETIN beginning with 1906 and developed into its monthly JOURNAL (1912). Every member is now kept in touch with its activities through the JOURNAL and the YEAR BOOK, which together include about 2,000 pages devoted to pharmaceutical progress.

One of the greatest of the Association's accomplishments for pharmacy was the publication of the National Formulary (first edition 1888, revisions in 1896, 1906 and 1916) and its adoption by Congress as a legal standard. Nearly thirty-five thousand copies of the fourth edition of the National Formulary have been sold. The fifth edition is now in the making, and the Association is devoting much time and energy to its preparation, as witnessed by the recent meeting of the National

Formulary Committee in Atlantic City. The early appearance of this edition of the book is eagerly looked forward to by pharmacists throughout the land. The projected publication of a formulary of non-official preparations, upon which much work has already been done, bids fair to be of great practical value to pharmacists.

During the course of its long existence the Association has constantly afforded a forum for all pharmaceutical interests. Its membership includes retail pharmacists, hospital pharmacists, manufacturers, wholesale druggists, analytical chemists, pharmaceutical editors, college professors—in short, persons interested in pharmacy from any standpoint. With an organization so heterogeneous, the association must acknowledge certain limitations. Each group will have special interests which, from their very nature, demand attention beyond that which the Association can well provide. Thus, from the parent stock have originated, from time to time, offshoots devoted to the interests of these special groups. Some of these branches have remained in affiliation, while others have broken away completely but maintain friendly relations with the mother organization. Efforts by the Association to unite more closely these special interests have achieved the formation of the National Drug Trade Conference in which are represented the AMERICAN PHARMACEUTICAL ASSOCIATION, the American Association of Pharmaceutical Chemists, the American Drug Manufacturers' Association, the National Wholesale Druggists' Association, the National Association of Retail Druggists, the Proprietary Association of America, the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy. The National Drug Trade Conference, though still in its infancy, has abundantly justified its existence and has accomplished much for pharmacy. Likewise the House of Delegates is the result of efforts to affiliate in some measure the State pharmaceutical associations, practically all of which owe their original formation to the stimulus given by the AMERICAN PHARMACEUTICAL ASSOCIATION.

A closer union of the various pharmaceutical bodies has been earnestly advocated, but apparently is not feasible. But among the good results of these endeavors for greater unity is the recent formation of the Coöperative Publicity Committee in which the larger organizations have representatives, and which holds promise of great usefulness.

The Commission on Proprietary Medicines, though its work has not been widely exploited, has really accomplished more toward bringing some sense of order and decency into the patent medicine business than anything that has been done heretofore. The Proprietary Association has adopted the principles laid down by the Commission almost *in toto* and is requiring its members either to conform to these principles or to withdraw from membership. The same principles have been adopted by the Associated Advertising Clubs of America as the rules by which patent medicine advertising is to be judged and are being very generally followed by the publications which acknowledge the authority of that association. A comparison of the advertising pages of an average publication of the present day with the pages of the same publication of some years ago will show that there has been a wholesome and marked improvement.

Space permits only a brief mention of the other activities of the Association. A few of these efforts are: to secure uniformity in international pharmaceutical nomenclature; to improve the status of pharmacists in the government service; to prepare a model pharmacy law; to assist in obtaining prerequisite legislation; to look after the pharmaceutical interests of the world war veterans; to erect a suitable memorial to Wm. Procter, Jr., the Father of American Pharmacy; to bring about closer affiliation between pharmacists and physicians; to secure the adoption of the metric system of weights and measures; to reform patent and trade mark legislation; and to assist in the preparation of the United States Pharmacopoeia.

Outstanding facts concerning the American Pharmaceutical Association are: that it is the only organization which provides a place where all pharmaceutical interests may meet on equal terms and in which all who are interested in pharmacy from any standpoint may hold membership; it is the only national organization devoted to the professional and scientific phases of pharmacy; its publications are unrivalled in this field.

What shall be the next forward step? Along what lines shall the Association's progress lie? Shall its scope be enlarged to give greater attention to legislative and business affairs? Must the appeal be made to the pharmacist's financial rather than to his professional welfare? Shall the AMERICAN PHARMACEUTICAL ASSOCIATION undertake to duplicate the work which other associations are doing? Shall the Association endeavor to affiliate other pharmaceutical bodies into an organization similar to the American Association for the Advancement of Science? These are questions which are in the minds of every thoughtful and loyal member of the Association. Upon their answers as expressed at the annual conventions and through the Council will depend the future of the Association.

WM. B. DAY.

THE NEW ORLEANS MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION—A VACATION OPPORTUNITY.

FEW will deny the value of annual association meetings, not only because of the opportunities afforded for exchanging experiences and comparing systems of business and professional conduct, but also for the contact with others, learning their viewpoints, and seeing the various sections of our country. The better acquaintance of many members with the industries and development of the United States, its resources and beauties, was gained in attending the annual conventions of the American Pharmaceutical Association.

None will deny the gain of general information by these travels, and that the store of knowledge is added to during the conventions. A full appreciation of the lasting friendships made at these meetings does not unfold until after several years of attendance. There must be business management and purpose in associations, but also the esprit de corps. The latter will not generate where there is lack of fellowship, when sincerity of purpose is questioned without just cause and selfish motives actuate individuals. Coöperation is an essential of association success.

Those who entered the drug business before the store of the present period had developed will remember the vacationless years and long hours that engaged the

apprentice and his preceptor. They were on the job from early morn until nearly midnight; a night or two off, and every other Sunday, and all or part of the holidays—Christmas, New Year's Day, the Fourth of July and Thanksgiving; the stores of the smaller towns and cities observed a few other days and events; still the word vacation is as old as the Latin language, and Cicero and Horace used it to express leisure or freedom from labor; Pompeii was their "Atlantic City," and some other place their "New Orleans." In earlier days in England the term "Vacation" was applied to the interval of court sessions, then to the months intervening between school or college terms, and then to the period of rest and recreation, during which time progressive professional and business men also attended conventions. A close relation obtains in the latter application—the strongest argument for vacations is that it pays to take them, and the demonstration of the economic value of the conservation of human energy has been the propaganda which promoted the convention idea, established the vacation custom, and the shorter hours of labor, all of which necessarily have their limitations, as well as benefits. Conventions of men engaged in the same line of work are necessary for its development—the business of recreation is combined with that of discussing and promoting trade and professional interests.

The twelve to sixteen hour drug store day has given way to one of fewer hours for employers and employees, and a sign, "Closed all day Sunday," hangs on the front door of many of the larger stores; one stating that these stores are represented at State and National Associations is equally advisable and commendatory; observation of the dictum serves the public interest.

Some persist in ignoring all associations, except to profit at the expense of others; some continue to work from early morning until late at night, and taboo vacations; later, their jangled nerves can't be retuned, and when they collapse there is no rebuilding them. The New Orleans meeting of the American Pharmaceutical Association is a vacation opportunity for you. E. G. E.

COÖPERATION IN AMERICAN PHARMACY THROUGH THE HOUSE OF DELEGATES.

BY JEANNOT HOSTMANN.*

In the May number of the JOURNAL (p. 327) Chairman Kelly of the House of Delegates has ably answered the oft-asked question "Why a House of Delegates?"

The present writer, in presenting some thoughts which he believes will help in making the House a real factor in American pharmacy, does so with the earnest request that every one interested in *organized pharmacy* and in all that the term implies will criticize the plan, either in person or in writing, before or at the New Orleans meeting where it will be discussed by the House.

The House of Delegates of the American Pharmaceutical Association was created by vote of the Association at the Denver meeting in 1912. The first meeting was held in Nashville in 1913. Originally its membership consisted of two del-

*Recording Secretary House of Delegates, American Pharmaceutical Association.

egates from every pharmaceutical organization in the United States. At Atlantic City in 1916 two kinds of membership were provided for—voting and non-voting—or active and associate, as it were. Delegates from any pharmaceutical and allied bodies are accorded the privilege of the floor. The right to vote is possessed only by the delegates from state pharmaceutical associations, each one of which is entitled to send three delegates.

The gradual evolution of the House is slowly but surely bringing about the result its sponsors had in mind, *viz.*, the coördinating and co-relating of pharmaceutical organizations by means of closer affiliation between the state associations and the mother of organized pharmacy—the AMERICAN PHAMACEUTICAL ASSOCIATION.

The writer believes that as a first step toward the goal sought for by Chairman Kelly a more permanent and active form of organization is needed and suggests the following:

1. That the secretary of the House communicate *at least once each week* with the officers of member state associations, either by letter or by bulletin or both.

Space will not permit the discussion of the need of this nor of the many benefits that would be derived therefrom. At the present time no state association knows what action any other association is taking upon matters of vital interest to all. Things happen in one state that probably will affect the pharmacist of some other state and he knows not thereof until it very often is too late for action. Such constant contact between state associations would do wonders in bringing about better understanding between and unity of action by the state associations.

2. That a legal representative or reporter be employed with headquarters in Washington who is to work in conjunction with the Committee on National Legislation and to keep the members of the state associations posted through the secretary of the House as to national legislative activities and who will be ready at any time to represent *American pharmacy* in the legislative halls in Washington.

The writer does not believe it necessary to point out the value to every member of the state associations of such service.

Some will say that this plan calls for duplication of certain activities. Mayhap it does. Granted this is so, the writer believes that any possible duplication will be of the beneficial and useful kind.

But you say "this will cost money." How is it to be financed? The writer has been informed that in the beginning a legal reporter can be secured for from $1200 to $1500. The office of the secretary will require about $1000 for stenographic help and other expenses. $500 should be held in reserve for emergency expenditures. How is this sum to be obtained? If thirty state associations will subscribe annually $100 each the sum will be at hand, and surely $100 a year is little enough when one considers the great benefits that will be sure to accrue to all from the activities of a House of Delegates functioning along the above lines.

The state associations represented in such a House of Delegates of the American Pharmaceutical Association would have behind them not only the prestige

of a membership numbering about 30,000 representing *all phases* of pharmacy from *all parts* of the United States but also that prestige which is the proud heritage of the American Pharmaceutical Association earned by 69 years of active service for the betterment of American pharmacy.

In closing, the writer would say that he believes that not only would such a House of Delegates aid in strengthening the American Pharmaceutical Association but it would also go a long way toward building up all other pharmaceutical organizations, be they local, state, or divisional.

SELECTION OF PLACES FOR MEETINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

BY T. J. BRADLEY.*

If the places for the conventions of the American Pharmaceutical Association were selected with the sole object of convenience in transacting the necessary business, they would probably all be held at points in the northeastern section of the country, where the greatest concentration of population and membership is found. This however, would so affect the interest in the Association and its work that there would be a loss of membership and influence throughout the country and the Association would soon be reduced to the status of a local organization. It is necessary to visit the various sections periodically in order to keep up the wide-spread membership which is essential for a truly national organization. Also one of the most attractive things about regular attendance at the annual meetings is the opportunity this attendance affords for seeing parts of the country that would not be visited otherwise; to this can be added the pleasure of yearly meetings with the many friends we make in the Association.

The influences mentioned above make for holding meetings in widely different parts of the country, but the present high cost of travelling, and the concentration of membership in the northeast make it desirable to meet more frequently in the latter section than in the others, and the progression of meeting places must be a compromise between these extremes. During the last few years the Association has met in San Francisco, 1915; Atlantic City, 1916; Indianapolis, 1917; Chicago, 1918; New York, 1919; Washington, 1920; and this year we are to visit New Orleans.

The writer has given considerable study to these conditions and he believes that the Committee on Time and Place of Meeting should plan the places of meetings for more than one year in advance, so that a logical progression of places may be decided upon. In this plan only the general sections of the country should be designated, leaving the exact places to be selected each year. By this arrangement each part of the country will be visited as often as circumstances warrant.

In view of the facts presented above it appears that the Association should convene in the central states in 1922, in the northwestern states in 1923, and in the eastern states in 1924.

---

*Chairman Committee on Time and Place of Meeting, A. Ph. A.

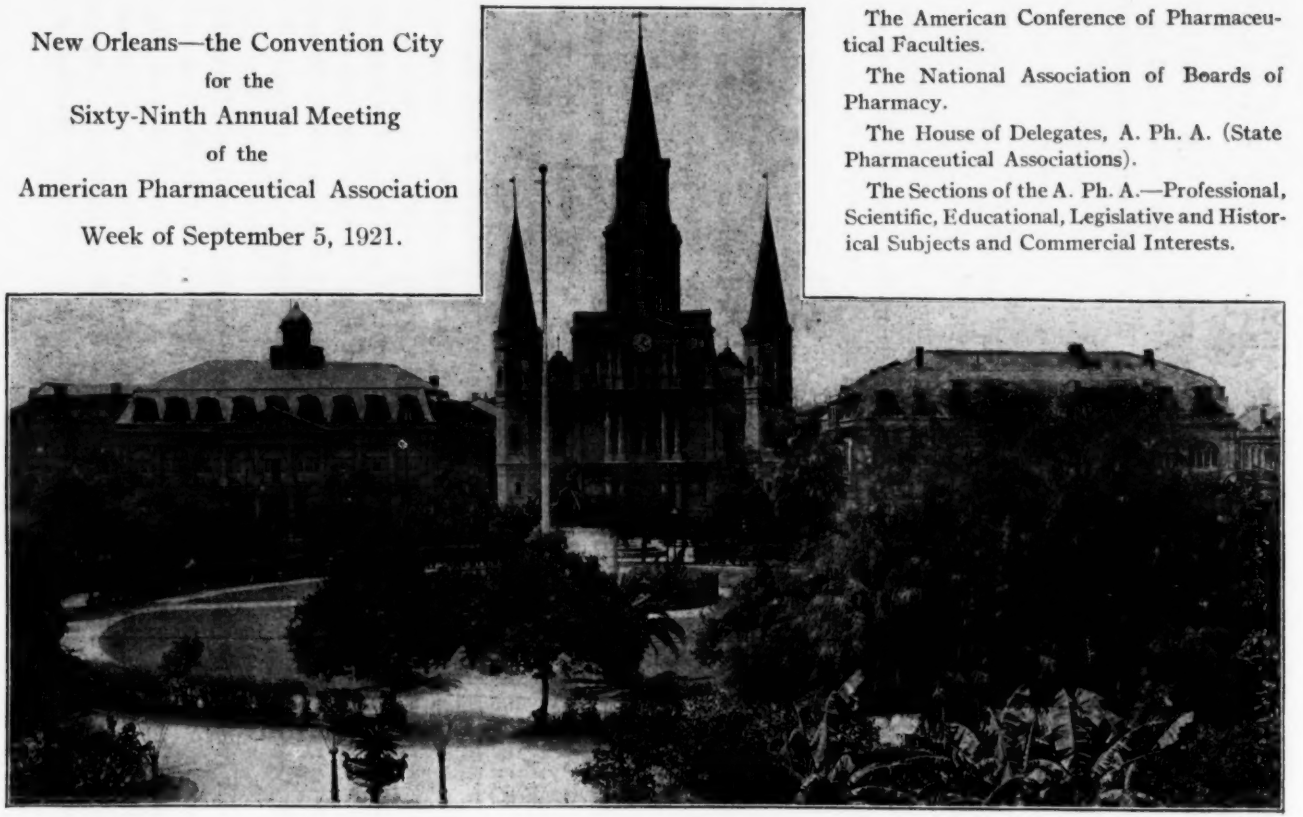
New Orleans—the Convention City
for the
Sixty-Ninth Annual Meeting
of the
American Pharmaceutical Association
Week of September 5, 1921.

The American Conference of Pharmaceutical Faculties.

The National Association of Boards of Pharmacy.

The House of Delegates, A. Ph. A. (State Pharmaceutical Associations).

The Sections of the A. Ph. A.—Professional, Scientific, Educational, Legislative and Historical Subjects and Commercial Interests.



JACKSON SQUARE, CATHEDRAL AND CABILDO OF NEW ORLEANS

TRANSPORTATION TO THE NEW ORLEANS MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The following is abstracted from a recent communication of Chairman Hugo H. Schaefer of the Transportation Committee, A. Ph. A. See also information p. XI, this issue, JOURNAL A. PH. A.

Tickets on Certificate plan are on sale September 1 to 7, inclusive; they must be viséd at New Orleans September 8 or 9, and will bear a final return limit to reach starting point up to midnight of September 13. Stopovers en route, or on return trip, are granted on such tickets within the life of their limit at the cities of Philadelphia, Baltimore and Washington. Return trip may also be made by boat, and reservations should be made at once; *none can be obtained for going trip.*

Be certain to ask for ticket on Certificate Plan, and see your agent early, so that there will be no question of securing such tickets; 350 of them must be viséd, or the return rate of one-half fare will not be allowed. A receipt will not answer, you must have a certificate.

REGULAR ONE-WAY RATES	RAILROAD FARE.	TAX.	TOTAL.
New York City	$48.38	$3.87	$52.25
North Philadelphia, Pa	45.14	3.61	48.75
Baltimore, Md	41.68	3.33	45.01
Washington, D. C	40.20	3.22	43.42
Richmond, Va	37.55	3.00	40.55
Atlanta, Ga	17.78	1.42	19.20
Montgomery, Ala	11.48	.92	12.40
Mobile, Ala	5.04	.40	5.44

Half fare on return trip, *via* same route, provided 350 tickets have been viséd.

PULLMAN FARES TO NEW ORLEANS, INCLUDING SURCHARGE AND WAR TAX.

	LOWER.	UPPER.	DRAWING ROOM.	COMPARTMENT.
From New York City	$15.80	$12.64	$56.70	$44.55
North Philadelphia, Pa	14.58	11.66	51.84	41.31
Baltimore, Md	12.96	10.37	45.36	36.45
Washington, D. C	12.96	10.37	45.36	36.45
Richmond, Va	12.15	9.72	43.74	34.02
Atlanta, Ga	6.08	4.88	22.68	17.01
Montgomery, Ala	4.05	3.24	14.58	11.34

In order to get as large a group together as possible it was deemed advisable to select one train, namely: "The New York and New Orleans Limited."

SCHEDULE OF "NEW YORK AND NEW ORLEANS LIMITED."

A. Ph. A. Convention opens on Tuesday, September 6, however the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy meet Monday, September 5.

		STANDARD TIME.	
Leave	New York City, Penna. R. R	5.05 P.M.	Saturday, September 3
	North Philadelphia, Pa., Penna. R. R.	7.14 P.M.	Saturday, September 3
	Baltimore, Md., Penna. R. R	9.30 P.M.	Saturday, September 3
	Washington, D. C., Southern R. R	10.55 P.M.	Saturday, September 3
	Richmond, Va., Southern R. R	11.00 P.M.	Saturday, September 3
	Atlanta, Ga., West Pt. Rte	6.10 P.M.	Sunday, September 4
	Montgomery, Ala., L. & N. R. R	11.50 P.M.	Sunday, September 4
	Mobile, Ala., L. & N. R. R	5.15 A.M.	Monday, September 5
Arrive	New Orleans, La., L. &. N. R. R	9.40 A.M.	Monday, September 5

RETURN TRIP FROM NEW ORLEANS.

The morning train from New Orleans, 8.30 A.M., arrives in New York City on second day at 6.45 A.M. and the train leaving New Orleans at 9.35 P.M. arrives in New York City at 3.18 P.M., second day.

Boat leaves New Orleans, Saturday, September 10, arrives in New York on the following Thursday.

The Railway Company suggests that reservations be made through A. Ph. A. Transportation Committee, and not later than August 24. One car will be set aside for A. Ph. A. members, others reserved when first car is filled.

THE STATUS OF PRE-REQUISITE LAWS AND PHARMACEUTICAL LICENSURE.*

BY J. W. ENGLAND.

The enactment of the pre-requisite law of the state of New York effective as of January 1, 1905, and of the state of Pennsylvania effective as of January 1, 1906, affecting the two most populous states of the Union, marks an epoch in the history of pharmaceutical education and legislation in this country. The surprising feature of this legislation, however, is that the importance of systematized pharmaceutical education as a pre-requisite for examination to practice was not legally recognized for nearly one hundred years after the establishment of pharmaceutical education in this country by the Philadelphia College of Pharmacy on February 23, 1821.

H. C. Christensen, Secretary of the National Association of Boards of Pharmacy, writes me (May 9, 1921) as follows:

"After the enactment of the prerequisite laws in New York and Pennsylvania, there followed a long period of inactivity along this line, or possibly more correctly a period of propaganda, without apparent results until 1915 when the North Dakota and State of Washington Boards of Pharmacy adopted prerequisite requirements by rulings of the Boards. Illinois and Ohio followed with prerequisite laws becoming effective July 1, 1917.

The seventeen states, including those mentioned above, in which prerequisite legislation has been enacted up to January first of this year, are as follows: New York, Pennsylvania, Illinois, Ohio, Indiana, Iowa, Kentucky, Maryland, Minnesota, New Jersey, North Dakota, Oklahoma, Rhode Island, South Carolina, Virginia, Washington, Mississippi.

Oregon has a requirement for one year college work effective 1921 and graduation effective 1922.

The five states which have reported that prerequisite legislation has been passed so far this year, are West Virginia, by ruling of the Board, North Carolina, Kansas, Nebraska and Texas. Pre-requisite legislation is pending in several other states where legislatures are still in session. Alabama, Michigan, Georgia, and a number of other states where conditions were not favorable this year, will see pre-requisite legislation in 1923."

By these data, it will be seen that less than one half of the states of the Union have pre-requisite laws, and earnest and determined steps should be taken by the pharmacists of every state not having a pre-requisite law to secure the enactment of such legislation, not only for the good of American pharmacy, but what is more important, the better service of the American people.

Almost as important as pre-requisite legislation, is the matter of reciprocity in pharmaceutical licensure, and on this question Mr. Christensen writes me:

"Reciprocity in pharmaceutical licensure is in force between forty-three states and the District of Columbia—the list is given at the bottom of this page.†

The procedure for reciprocity is by agreement between the state Boards of Pharmacy of the various states using this office as a clearing-house. The applicant for reciprocity secures the official reciprocal application blank from this office on payment of the required fee of $15.00 (which fee goes for the up-keep of the N.A.B.P. and the bringing about of uniformity in examination methods,

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*Read at annual meeting of Pennsylvania Pharmaceutical Association, June 1921.

†Active Member States between which reciprocity is in force: Alabama, Arizona, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin.

etc. in the various states). Certification as to registration and grades must be made on this blank by the Secretary of the state board of pharmacy in the state where he is registered by examination. The application then goes to the Secretary of the State where registration is desired, with the required amount of state registration fee.

By agreement between the various boards of pharmacy certain minimum requirements were adopted at the time of the organization of the National Association of Boards of Pharmacy with reference to standards, etc., which a state board of pharmacy must come up to in order to have their licentiate recognized in other states. Since these minimum requirements were adopted, the Association has endeavored to consistently advance the standards in the various states from time to time, and an applicant for reciprocity must meet these higher standards, providing he was registered since they went into effect. This plan of reciprocity is working out very satisfactorily, both with reference to accommodating those who wish to go from one state to another, and also tends to raise the standards of all states, since those states lagging behind lose the benefits of reciprocity for their recent licentiates."

In this connection, Lucius L. Walton, Secretary of the Pennsylvania State Board of Pharmacy, writes me (May 2, 1921) as follows:

"In the list of active member states between which reciprocity is in force, the reciprocity exists between them in so far as the laws of the respective states will permit. In addition to this list is New York as an Associate Member, approving and supporting the organization, but holding aloof from participating in the reciprocal methods of the Association.

The affiliated active list gives evidence of the general approval of the organization by the boards of pharmacy of nearly all of the states. The attendence upon the annual meetings of the National Association of the Boards of Pharmacy gives evidence of the interest and desire upon the part of at least 60 percent of the boards to perfect the organization and bring about uniform requirements and methods for determining the same.

At the meeting of the Second District of the Boards held in Atlantic City last November, the New York Delegation agreed to propose that reciprocity be adopted by the Board of Regents of the State of New York based upon the qualifications of the individual applicants.* This is really what we do in Pennsylvania. Originally the pre-requisite provision of state laws was so drawn that there could be no reciprocity unless the participating states had the same legal requirements for registration.

The National Association of Boards of Pharmacy represents the state boards of 43 states and the District of Columbia; it does not represent California, New Jersey, Rhode Island and Wyoming, while New York has only associate membership.

Our national organization cannot compel any state board to make a reciprocal registration if it does not want to make it. It represents the consensus of opinion of its constituent members on all questions relating to requirements and examination methods through its constitution and by-laws, which the members are expected to coöperate in making effective except when the law of some state prevents."

The National Association of Boards of Pharmacy was organized in Kansas City, Mo. in September, 1904, in accordance with a resolution passed at the Mackinac meeting of the American Pharmaceutical Association in 1903.

By these facts, it will be seen that the National Association of Boards of Pharmacy has probably contributed more to the advancement of the legal standards of pharmacy than any other single agency. In later years it has had the coöperation of the American Conference of Pharmaceutical Faculties (organized in 1900), which has done much to aid the organization in its work for the legal betterment of the practice of pharmacy.

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*Warren L. Bradt, Secretary of the New York State Board of Pharmacy, writes me as follows: "Replying to your letter of May 25, I am advising you that no action has been taken by this Board recommending to the Board of Regents reciprocity of licenses with any other State Board." (J. W. E.)

Pharmaceutical education and legislation should go hand in hand, to the end that the interests of pharmaceutical education may be promoted, pharmaceutical legislation made more effective, and public service improved.

SUGGESTIONS ON PHARMACEUTICAL RESEARCH.*

BY ALBERT SCHNEIDER.

Research may be defined as a seeking after facts or principles, or a searching after truth. What is a fact or principle, or what is a truth? Facts are unalterably fixed whereas a truth is a mere mental attitude. Facts are objective and outside of mind. A truth is subjective, mentally generated and as variable as are mental cerebrations. That which is a truth to one may not be a truth to another, and a truth is not necessarily in harmony with the fact. For example, we are inclined to accept as truth that two and two make four, but is it necessarily a fact? There are learned scholars who are ready and willing to argue the question. That vaccination prevents small-pox is a demonstrated fact, yet there are thousands upon thousands of apparently sane people, some of them laying claim to scholarly attainments, who refuse to accept the fact as a truth. Cancer is a fact, tuberculosis is a fact, gravitation is a fact, war is a fact. What are the truths concerning these facts? Opinions have been uttered from time to time regarding facts of many kinds, many of them in the nature of truths (in the sense that they were subjective convictions which were acceptable to many, or to the majority), which in the light of later observations proved that they were not in harmony with the actual facts. It is no doubt clear that true research is and should be directed toward the disclosing or baring of facts rather than a searching after truths, for investigations pertaining to so-called truths are in the very nature of things primarily prompted by prejudice, either for or against the presumptive truth. To illustrate, universal gravitation appears to be a fact and we have accepted as truth that universal gravitation is some form of energy which is inherent in matter, or one with matter. Is this generally accepted truth one with the actual facts in the case? The proper manner in which to proceed in the investigation of this question is to seek directly after the facts of universal gravitation, and not to search for evidence which might either sustain or refute the generally accepted theory of universal gravitation. As to the disease known as cancer, the existence of which all will admit to be fact, we earnestly pray for a cure. Should the primary research be in the direction of the cure? The logical procedure would be to find the cause, then the cure will naturally follow. We might accidentally stumble upon the cure, as we have done in the case of small-pox, of syphilis and of yellow fever. It is true that we may accidentally hit upon the cure without having located the cause definitely, as in the case of the diseases just named, but a rational plan for any research or investigation should be directed toward the revealing or disclosing of facts.

Who may seek after facts or first principles? The logical conclusion which all must reach is that there can be no disbarment. Any and all are inalienably privileged to disclose facts. Right at this point we meet with confusion. Who shall

* Parts of a report presented at twenty-first annual meeting of American Conference of Pharmaceutical Faculties, City of Washington, 1920.

say what is the truth about a fact, since truth is wholly subjective and a mere mental attitude? Shall all have an equal right to declare truths? Shall, for example, the farmer have an equal right or privilege with the eminent bacteriologist to declare truths about Asiatic cholera? Shall the eminent statesman have an equal privilege with the great chemists to state truths about molecules? Indeed, it is generally declared that the utterance of truths is an inherent human privilege which is not to be denied anyone, and as a result we are at times compelled to listen to some very grotesque statements. Even though a truth is declared and freely subscribed to by a vast majo ity, it may nevertheless be far removed from the actual facts in the case. Witchcraft was once vehemently declared to be truth by the majority, but the majority were evidently in the wrong. Our libraries contain thousands upon thousands of tomes devoted to the exposition of truths, rather than to the setting forth of facts, with the result that the seeking mind often becomes greatly confused. Only the mind of unusual discernment is able to recognize scattering grains of fact which lie hidden in the enormous mountain of chaff which is self-styled the truth. Fortunately, scientific endeavor is more inclined toward a disclosing of facts than to an exposition of truths, and hence correspondingly less likely to error and confusion.

As is known to all, there are facts and facts. Some are admittedly important and others appear to us quite unimportant. There are many facts the importance or significance of which is as yet not apparent to us, and not knowing how important they may be we feel no special urge to disclose them. There is, no doubt, absolute unanimity in the thought that research should be directed toward useful ends, but the concept useful, like the concept truth, is again subjective and hence as variable as are the individual human minds. There are, however, some ideas regarding utilitarianism in which nearly all will concur, as for example a desire to be freed from disease, to enjoy good health, to be free from pain, to live to a good ripe age, to enjoy peace and prosperity, and many others. There are also many things which are recognized as desirable by perhaps the majority, but which may be entirely beyond that which is practically attainable. There are also many things which may appear attainable but which are wholly impracticable. Who shall decide what is desirable and what is practical and practically attainable?

We hear it said of this one, "He is well educated, but he is not practical," and of that one, "He is practical, but is lacking in education." The impractical man is so whether educated or not. Education does not make a man impractical, nor does the lack of education make him practical. In fact there are more impractical ignoramuses than there are impractical university graduates, due to the fact that the naturally practical man is more likely to realize the value and importance of learning. It is desired to call attention to that which is impractical in our educational system, irrespective of the naturally practical or impractical tendencies in those who seek after knowledge. No one will deny that our educational system is doing incalculable good.

Nevertheless, certain defects exist and it certainly can do us no harm to call attention to some of them. Attention has been called to the impractical side of education from time to time. Paracelsus, the great alchemist, was bitterly opposed to the academic system of his time, declaring that it did more harm than good.

Others took up the work of educational reform, resulting in changes for the better. The most urgently needed reform is in the graduate courses of the university, embodying the so-called original research work. There is a strong tendency to imitate the European universities, without even comprehending the ulterior aims and purposes of the foreign universities. There appears to be no good reason why we should ape foreign universities.

After a student has diligently prepared himself to do some piece of original work, as at the completion of the university undergraduate course, there is no reason why he should not take up some research work which will prove of benefit to mankind. Why should he waste time and energy in an effort to determine the probable function of the directive spheres in the egg-cell of the lily, or worry over the detailed structure of the nuclear spindle, etc. There is too much astronomical, mathematical and literary research. It is no doubt interesting to know of the behavior of a certain comet that we will never see again; it excites our envy to see a mathematician manipulate complex algebraic formulae, and we may be astounded at the erudite interpretation of some sentence from Browning or from Fichte or Hegel; but what is the practical gain therefrom? Of what avail is all this to the mother who sees her child in the throes of some fatal malady for which medicine has no cure, or to the man shipwrecked in mid-ocean or lost in some dreary desert, or to the cancer patient, or to the patient in the last stage of consumption? Would it not be wiser to devote our best energies to the improvement of human well-being? Let the purely theoretical investigations, the mere display of intellectual skill, the mere internally evolved theorizations and suppositions rest until we have found a remedy for human sufferings, defections, human want and woe. As long as we fail to prevent the terrific loss of life due to disease and warfare, due to starvation and accident, and as long as unhappiness, if not actual misery, is the rule, rather than the exception, there is no time to waste in an effort to determine the limitations of the ego and the non-ego, the types of limb structure of the triassic ichthyosauria, the probabilities concerning the Martian canals, theories regarding the evolution of the simple curve, the probable velocity of stars, the origin and duration of the Umlaut in Germanic languages, evidence proving that Shakespeare did not write his own plays, etc. Researches of this sort may amuse and interest some and thus add their iota toward maintaining the gaiety of nations, but not the remotest lasting benefit can result therefrom as far as the alleviation of human want and suffering is concerned. In the wholly practical research hinted at above, our range of pure knowledge will be evidenced much more than through the pursuit of purely theoretical and impracticable investigations, and we shall, furthermore, have the all-satisfying feeling that we have been of some benefit to mankind.

From the foregoing statements it is not to be concluded that a university training is necessary to do research or to accomplish good deeds. It does not even follow that the good that may be done is proportional to the educational qualifications. Some of our greatest benefactors were almost illiterate. Nor must it be concluded that the practical aim and end of research work should be clearly discernible in advance. The successful outcome of a bit of research work may be purely conjectural or may appear even quite impossible; nevertheless, it should be undertaken with a practically utilitarian aim in view, and continued until it is

demonstrated satisfactorily that it can or cannot be accomplished.

All will agree that some of the researches of the past which have been carried out to final conclusions have been of great benefit to mankind and some have been wholly useless, while yet others have been a detriment and hindrance to human progress. The discoverers of the cure for diphtheria, of the prevention of smallpox and of malaria, and of the carrier of yellow fever, are one and all great benefactors. The discovery of the fossilized remains of long extinct plants and animals is interesting but of no intrinsic value. The inventors of death-dealing implements of war are not entitled to high honor. He who will discover the cause and the cure for cancer will be hailed as the greatest of human benefactors. He who will discover the source of universal gravitation or the ultimate structure of the atom, will unquestionably be called the greatest discoverer of the age, and yet he may not be a great benefactor. A statesman might be such a past-master in the art of Machiavellianism as to embroil nations in a war which will destroy millions of lives, sink yet other untold millions into unutterable misery, and set back the wheels of progress for hundreds of years; and yet, there are some who would hesitate in applying to him the title of great statesman.

We are certainly warranted in declaring that research in order to be deserving must be utilitarian in its aim and purpose, and should comply with the following requirements:

1. It must be directed toward good to mankind as a whole.
2. It must be based upon the fullest knowledge obtainable of such related researches as may already have been carried on by others.
3. It must be in harmony with good judgment and sound reasoning.
4. It must be suited to the ability and equipment of the investigator.

The following suggestions are offered which are to serve as a basis for the development of research in pharmacy and in the related sciences:

A Create a committee or council to be known as the American Council of Pharmaceutical Research, which shall direct the research work in pharmacy in the United States and shall give suggestions and advice relative thereto. There shall be seven members appointed to the council and each member shall serve seven years, excepting that the appointment to the first council shall be made in such manner that the members will serve 1, 2, 3, 4, 5, 6, and 7 years, respectively. Each year thereafter one new member shall be appointed from the list of eligibles.

B. Qualifications for membership in the council shall be based upon a rating to be deduced from the following attainments. There shall be no age limit to membership.

1. Academic standing, represented by degrees from recognized colleges and universities, American and foreign. Honorary degrees shall not be considered in the rating.

2. Scientific and literary attainments, which are grouped as follows:

a. Special contributions to pharmacy and the related sciences.

b. General contributions to pharmacy and the related sciences which may be considered of special merit.

c. Abstracts and compilations shall not be considered.

d. Translations of special value to the science of pharmacy shall have the same weight as b.

3. Special activities.

a. Research work accomplished, representing progress in pharmacy and in the related sciences and which may or may not have been published.

b. Investigations and research work engaged upon, with or without published preliminary reports.

c. Plan or plans for future research. Such plans must be fully and clearly stated.

4. Special attainments and accomplishments.

a. Languages, especially German and French.

b. Other languages, as Chinese, Hindu, Arabian, etc.

c. Travels and expeditions in the interest of pharmacy and the related sciences.

d. Membership in scientific bodies and organizations of recognized standing. Honorary membership in such organizations shall not be taken into consideration.

The rating values of the qualifications enumerated above and tabulated shall be as follows:

(1) Shall have a value not to exceed 35 per cent.

(2) Shall have a value not to exceed 35 per cent., distributed as follows:

a. Shall not exceed 25 per cent.

b or d. Shall not exceed 10 per cent. each.

(3) Shall not exceed 20 per cent., distributed as follows:

a. Shall not exceed 12 per cent.

b. Shall not exceed 6 per cent.

c. Shall not exceed 2 per cent.

(4) Shall not exceed 10 per cent., giving a value of 2 per cent. to each qualification or attainment, as the case may be.

The total rating shall not exceed 100 per cent., and each candidate must receive a rating of not less than 75 per cent., in order to be eligible to membership in the council.

C. The first council shall be appointed as follows: A committee from the American Conference of Pharmaceutical Faculties shall prepare a list of American pharmacists having the qualifications set forth above and the seven persons having the highest ratings shall constitute the first council with a time service as follows:

One member to serve one year.
One member to serve two years.
One member to serve three years.
One member to serve four years.
One member to serve five years.
One member to serve six years.
One member to serve seven years.

D. The council thus appointed shall effect an organization and apportion as best they may all such work and duties as may suggest themselves. Each year thereafter one new member shall be appointed from the list of eligibles, said appointment to be made by the council itself. The conference shall determine who shall be eligible.

E. It is intended that the council shall serve as a nucleus out of which shall be created the "American Academy of Pharmacy," membership in which shall be based upon qualifications similar to those required for membership in the council. The Academy may have an associate membership with less severe membership qualifications.

F. An essential to the success of the plan of pharmaceutical research is a publication for purposes of propaganda, and in which the various research articles may be from time to time published. No definite plan regarding a suitable official organ can be submitted at this time. The following suggestions are submitted for consideration and discussion.

a. Arrangements by which the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION might be used as the official organ.

b. Enlargement of the *Proceedings* of the Conference to include the work of the Research Council and the research reports which may be submitted during the year.

c. Revival of the *Pharmaceutical Archives* and development of this into the official organ of the council and finally also of the proposed Academy of Pharmacy.

d. Establishment of a new journal, a quarterly bulletin or an annual report, for the time being, the cost which is to be defrayed by the Conference. To this end the membership in the Conference might be increased.

The following suggestions on the grouping and distribution of research work are offered, hoping that they may indicate what practical results it is hoped to accomplish. The suggestions apply to those branches of pharmaceutical science concerning which the writer has some knowledge, leaving it to others to suggest research problems in other branches of pharmacy.

A. Research problems which may be undertaken by students in colleges which have the necessary equipment. Each problem assigned must be checked and rechecked by the student with the help of the instructor, until there can be no doubt as to the results and conclusions. The instructor must be held responsible for the accuracy of the work done by the student.

a. Qualitative methods of microanalysis of drugs and of related substances. A student should not attempt more than one or two problems, as the work must be completed before he finishes his college course.

b. Quantitative methods of microanalysis of drugs and of related substances. The student should not attempt more than one problem.

c. Ash determinations (total and acid insoluble) of absolutely pure average commercial samples. One student might complete six such determinations.

d. Drug assaying (chemical). A student should not attempt more than from three to five such problems.

e. Seed germination tests of drug plants which may be cultivated in the United States. Seed treatment to hasten germination, etc.

f. Adulteration of vegetable drugs, spices, insect powders. Samples to be obtained in the open market, retail and wholesale.

g. Composition of dusting powders, and face powders, obtained in the open market.

h. Fineness of powders intended for percolation.

i. Compound vegetable powders, as to composition, purity and quality, correct proportions, etc.

B. Suggested research problems for instructors in colleges of pharmacy.

a. The rate of deterioration of organic compounds, more especially glandular extracts, sera, vaccines and bacterins.

b. Working out a simplified method for determining the efficiency value of disinfectants.

c. The microbic contaminants of pharmaceuticals.

d. The effects of radioactive ores on plant growth.

e. Microbiological root symbiosis of the more important drug plants.

f. The microbial contaminants of face powders, face lotions, toilet preparations, etc.

g. Ultra-filters and ultra-filtration.

h. Allergic skin reactions with a view to determining the following:

Susceptibility to drugs, poisons, bacterial toxins, etc.

Suitable dosage of drugs.

Susceptibility to disease.

Sensitiveness to foods.

Variability in anaphylactic reactions.

i. Useful and practical clinical tests, as

Urine tests for tuberculosis.

Urine test for typhoid, etc.

j. Ultra-violet rays in the sterilization of liquid medicaments.

k. Problems in the cultivation of drug plants.

l. An endless series of problems suggest themselves in the domain of colloidal chemistry.

m. Drug store sanitation problems, with a view to the formulation of rules and regulations in prescription work and in pharmaceutical manufacture.

n. Numerical limits for the microbial contaminations of pharmaceuticals, and methods for determining such limits.

o. Soda fountain troubles. Diseases of soda fountain syrups, etc.

The suggestions above are submitted with the hope that the beginnings will be made in creating an interest in pharmaceutical research and that something may be done to systematize and regulate such work.*

* Action on report:—Chairman, A.C.P.F. Research Committee to coöperate with other research committees to bring about the formation of some institute, such as suggested by Dr. Schneider. That the Research Committee be directed to continue the line of enlargement of research as outlined, relating to subjects for research.

PHYSIOLOGICAL CHEMISTRY IN COLLEGES OF PHARMACY.*

BY MITCHELL BERNSTEIN, M.D.

Physiology, or the study of the functions of the human body, has recently assumed greater importance than ever before. Allied closely with this study is that of chemistry, properly described as the science of the composition of matter. Our concern in physiology being that of living material, with its many intricate and ever changing compositions, of necessity involves minute investigation in the chemical realm. It has been only a short time since this close relationship has attracted investigators with the result now of an inestimable field designated as physiological chemistry.

The practice of medicine to-day has passed far beyond the pure empiricism of former days, but is largely founded now upon facts explained on physiological and chemical bases. It is a curious fact that it is difficult to find a paper upon a modern medical topic in which reference is not made in some way to one or more biochemical analyses.

While it is not my object to go into a detailed discussion of the many diversified analyses and syntheses, I desire to call attention to the importance of developing properly trained physiological chemists to undertake this work; pointing out at the same time the relationship of physiological chemistry as a vital factor in the diagnosis and treatment of disease.

It is by a thorough understanding of the chemical composition of the normal body fluids such as blood, lymph, gastric juice, bile, etc., in contradistinction to analysis of these fluids in the state of abnormal activity or disease that has given physiological chemistry its vital import.

The phenomenon of life is in reality a series of increasing chemical changes of both composition and decomposition in response to certain chemical and physical influences in the human body. A moment's reflection will inform us that the human structure represents in all its aspects a most comprehensive chemical laboratory. By a series of anabolic changes various food materials such as fats, sugars, carbohydrates and proteins are taken into the body and made into living material and after utilization as such are eliminated as various waste materials such as urea, carbon dioxide, etc. This latter series of decomposition is often termed catabolism. The multitude of chemical changes constantly going on within this human laboratory become not only amazingly interesting but in some instances almost beyond chemical explanation.

By chemical analysis the body can be reduced to a number of liquid and solid compounds belonging to the organic and inorganic worlds and termed proximate principles. The organic compounds consist of representatives of the carbohydrate, fat and protein groups of organic bodies.

Carbohydrate exists as glycogen in the liver and is readily convertible to dextrose, which is present in the blood in fixed amounts. Fats are capable of saponification and emulsification in the intestine, and are found distributed throughout the body. The proteins comprise a group the exact structure of which is as yet not determined, but is said to consist of carbon, oxygen, hydrogen, nitrogen,

* American Conference of Pharmaceutical Faculties meeting, 1921.

phosphorus, and sulphur in varying amounts. This group is absolutely essential to life, and is colloidal in character. They are utilized in the body by being reduced to relatively simple nitrogen holding compounds, termed amino-acids, of which we have a series of some twenty, as glycocoll, leucin, etc. It is to be remembered, however, as a point of prime importance that this class of proteins can undergo putrefaction or fermentation due to bacteria. Further, that the chief source of nitrogen waste excreted as urea and creatinin, and other nitrogen inorganic compounds are derived through decomposition of the proteins

The inorganic bodies consist of water, various acids and inorganic salts. These proximate principles can be further resolved by an ultimate analysis into a number of chemical elements, such as oxygen, hydrogen, nitrogen, carbon, phosphorus, iron, sodium, etc. These elements, while not existing in the free state, are found in many variable combinations throughout various organs of the body: thus calcium phosphate is largely distributed in the bones, teeth, cartilage, blood, etc. Calcium carbonate also is found in the bones, teeth, etc. Sodium chloride, itself of vast importance as it regulates to a large extent the phenomena of diffusion, is present in all tissues and all fluids of the body. Sodium phosphate and sodium bicarbonate, alkaline in reaction, impart alkalinity to the blood and are now termed "buffer substances." Of the many other salts of sodium, potassium, magnesium, iron, etc., time does not permit of discussion, except to say that each is widely distributed and has its function.

It is quite apparent that for the maintenance of life, one must supply to the body the principles mentioned above: these principles undergo digestion and absorption into the blood stream, which is the nutritive fluid of the body, and also enter into the chemical formation not only of the tissues but of all the body fluids such as bile, gastric juice, etc.

With this brief resumé of the elementary chemistry of the body, it is apparent that we can easily study the degree of physiological or pathological conditions: thus, an analysis of the blood, which requires but a small amount of material, may yield many facts of physiologic as well as of clinical importance.

Blood chemistry stands out as a conspicuous factor in present-day analysis, especially in two diseases, nephritis and diabetes. The blood determination for non-protein nitrogen and urea content, which are greatly increased in nephritis, especially in the chronic type, is highly important. Often the total nitrogen content, in conjunction with the factors above, is highly indicative not only in the diagnosis, but in the prognosis for the future welfare of the patient. This is especially true in uremia where there is a great increase in nitrogenous components of the blood, such as uric acid, creatinin, creatin, amino-acid nitrogen and even ammonia in conjunction with urea nitrogen and non-protein nitrogen. Very often the surgeon prior to operation, especially upon one with prostatic disease and associated nephritis, demands the determination mentioned above which, under increased percentages, would contraindicate a general anesthetic like ether.

In diabetes, blood chemistry reveals its chief significance in the determination of glucose content and for the study of acidosis. In this latter and often fatal condition, there is an increase in acetone, diacetic acid and hydroxybutyric acid, but blood examination alone will present the significant findings showing

the severity and gravity of the condition. In conjunction with the various tests under acidosis, recent investigation has yielded other methods which are more or less typical of this condition. These include the determination of the alkali reserve of the blood, sometimes known as "buffer value." The correlation of these facts in all cases of diabetes, in conjunction with the sugar findings in the urine, are necessary for the rightful knowledge of the progress of the case.

Recently the determination of the cholesterol content of the blood has been said to be an aid in the diagnosis of gall-stone formation. Aside from blood chemistry, with its many chemical analyses, the study of other fluids of the body by laboratory tests are highly significant. Especially is this true in gastric analysis. The former examination of a single gastric content has now given way to the fractional method of gastric analysis, by which is meant the determination and findings of stomach content removed at short intervals. The determination for total acidity, free acidity, pepsin, trypsin, lactic acid, occult blood, and bile have great significance in all cases where the stomach is to be studied in relation to the various forms of gastritis, ulcer, and malignant growths.

With this brief synopsis of a few of the laboratory tests and their significance in medicine, there naturally comes the thought of the development of those best fitted to undertake such work. While physicians frequently develop into laboratory workers, especially along serological lines, yet I feel that those who have the fundamental chemical knowledge, acquired from the courses given in our better colleges of pharmacy, would be excellently equipped for this field of physiological chemistry.

While it is true that the physician is the one to interpret the significance of laboratory findings, yet the determinations should be made by one who has a thorough understanding of the basic chemical principles underlying these tests.

A course in physiological chemistry would indeed be an asset to colleges of pharmacy, not only in advancing scientific teaching, but also in preparing men pharmaceutically trained to take up this important, necessary and newer science.

THE CHEMISTRY AND THERAPEUTIC PROPERTIES OF CHAULMOOGRA OIL.*

BY L. E. WARREN.

Within the last few years certain derivatives of chaulmoogra oil have attracted considerable attention in the tropics because of their increasing use in the treatment of leprosy. In India and adjacent countries chaulmoogra oil has been used both orally and externally in the treatment of leprosy since prehistoric times. It has also been used there for rheumatism, syphilis and various skin diseases. However, it is so irritant to the intestinal tract that the oral dosage can seldom be pushed to the curative point in leprosy. It is a current belief among the natives of India that even if the digestive tract of a leper patient can withstand the chaulmoogra oil treatment the disease can not always be cured, *i. e.*, that chaulmoogra oil is not a specific in the treatment of leprosy. Since it seems probable that the derivatives of chaulmoogra oil are destined to have a prominent place in therapy in tropical

* Read before the Chicago Branch, A. Ph. A , May meeting, 1921.

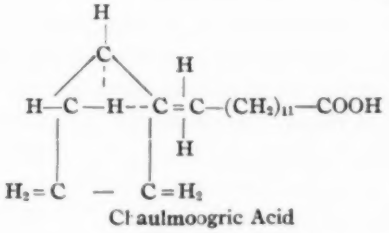
countries, it appears worth while to call the attention of the pharmaceutical profession to this class of remedies, even though the prescription pharmacist in temperate climates may not be likely to have calls for these products. There is a possibility, however, that chaulmoogra derivatives may have curative properties in the treatment of tuberculosis. Should this prove to be the case, pharmacists everywhere will be required to handle this class of substances. In bringing this subject before you it is to be understood that this paper is in the nature of a review or digest and that it records no original investigations.

It was long supposed that the chaulmoogra oil of East Indian commerce was derived from the seeds of *Gynocardia odorata* R. Brown, Family *Flacourtiaceae*, a tree native to the Malay peninsula and North-Eastern India. Bentley and Trimmen[1] describe this plant, as the source of the oil and show a colored illustration of the flower and leaves and a fruiting branch. Chiefly as a result of the researches of Prain and Holmes,[2] it is now known that the true source of chaulmoogra oil is the seeds of *Taraktogenos Kurzii* King. (*Hydnocarpus heterophyllus* Kurz.) This is a handsome tree, a native of Burma. Like *Gynocardia* it belongs to the *Flacourtiaceae* family. The fruit of *Taraktogenos* is of the size of a grape fruit. It contains many irregular-shaped, brown seeds which are rich in oil. Chaulmoogra oil is obtained from the seeds by cold expression. At ordinary temperatures it is a soft solid or semi-liquid, having a peculiar, characteristic odor somewhat like linseed oil.

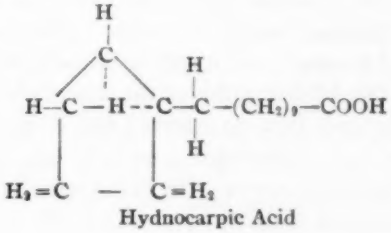
The chemistry of true chaulmoogra oil was very exhaustively worked out by Power and his associates a number of years ago.[3] They found that the oil consists chiefly of the glyceryl esters of two or more new fatty acids, with a small quantity of palmitin and a phytosterol. The new acids isolated differ from any previously known fatty acids in containing a five-membered carbon ring with side chains of diminishing length as the molecular weight decreases. Also, they are unique in being optically active. They contain only one pair of doubly-linked carbon atoms; hence they absorb but two halogen atoms. The acids isolated were named respectively "chaulmoogric acid" and "hydnocarpic acid" by their discoverers. Lewkowitsch[4] has assigned them to a homologous series $C_n H_{2n-4} O_2$ of an entirely new type which he calls the *cyclic* or *chaulmoogric* series. It is probable that the specific bactericidal and medicinal properties of these acids are associated in some way with their molecular constitution. The constitution of two of the members of the series and of a third theoretical one which has not been isolated are given herewith and their properties tabulated. For the sake of comparison the structural formula for oleic acid is given also.

CONSTITUTION OF THE ACIDS OF THE CHAULMOOGRIC SERIES

$C_nH_{2n-4}O_2$

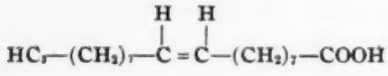


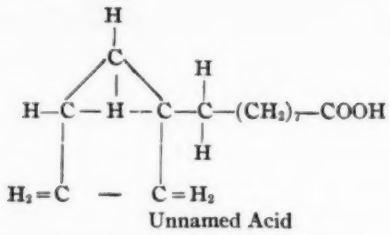
Chaulmoogric Acid



Hydnocarpic Acid

Constitution of Oleic Acid $C_nH_{2n-2}O_2$





Unnamed Acid

TABLE I.—CONSTANTS OF SOME OF THE ACIDS OF THE CHAULMOOGRA SERIES.

Acid.	Molecular Weight.	Iodine Number.	Saponification Number.	M. p.	Specific rotation.
Chaulmoogric	280	90.7 90.1	200.4	68°	+62.1° +56°
Hydnocarpic	252	100.79 100.2	226.6	59°	+68.1°
Unnamed (next lower in series)	224 (calculated)	113.3 (calculated)	250.5 (calculated)	probably liquid at 25° C.	

Power and his collaborators[5] demonstrated that the oils of *Hydnocarpus anthelmintica* Pierre and *Hydnocarpus Wightiana* Blume are physically and chemically similar to the oil from *T. Kurzii*. On the other hand, Power and his associates[6] demonstrated that the oil from *Gynocardia odorata* R. Brown is totally unlike the oils from the chaulmoogra series of plants. It is a liquid at ordinary temperature, is optically inactive and contains none of the cyclic hydrocarbons which are characteristic of the chaulmoogric series. It resembles linseed oil in its chemical properties. From its constitution it is probable that gynocardia oil cannot be of any value in the treatment of leprosy. Goulding and Akers[7] reported that the seeds of *Oncoba echinata* Oliver, an African plant, contain an oil which is very rich in chaulmoogric acid glycerides. De Wolff and Koldewijn[8] have examined the oil from *H. Alpinus* Wight. Its constants indicate that it is very similar to the oils from other hydnocarpus species. Brill has shown that the oils from the seeds of the Ph lippine plants, *H. venenata* Gaertner[9] and *H. alcalae* C. De Condolle,[10] contain chaiulmoogric and hydnocarpic acids (in a form of glycerides) and he suggests that these oils, therefore, are probably therapeutically equivalent, or nearly so, to chaulmoogra oil. Also it was found by Brill that the oil from the seed of *Pangium edule* Reinwardt[10] contains small amounts of the glycerides of the chaulmoogric acid series. It is probable that the oils from several of these plants are sold in the Orient more or less indiscriminately for "chaulmoogra oil." As knowledge of the chemistry of tropical plant products increases it is reasonable to suppose that oils from other plants will be found to contain chaulmoogric acid and its homologues.

The essential properties of the several oils of the chaulmoogric series are given in the accompanying table. The constants given are taken from various sources and in some cases it will be noted that there are considerable variations in the values.

The bibliography of the use of chaulmoogra oil in the treatment of leprosy is so extensive that no attempt will be made here to review the earlier writings and only the more important papers of later dates can be mentioned. At the close of the nineteenth century the belief was gradually becoming fixed in the minds of medical men that chaulmoogra oil was the one drug in the materia medica in which there lay

TABLE II.—COMPARISON OF CHAULMOOGRA OIL AND RELATED OILS WITH GYNOCARIDA OIL.

Physical properties, constants, etc.	*Taraktogenos Kurzii*	*Hydnocarpus Wightiana*	*H. Anthelmintica*	*H. Venenata*	*H. Alpinus*	*H. Alcalae*	*Oncoba echinata*	*Gynocardia odorata*	*Pangium edule*
Physical Condition	Soft solid at 25°	Soft solid at 25°	Soft solid at 25°	Soft solid at 25°	Solid	Solid	Hard Opaque solid	Liquid at 20°	Liquid at 20°
Yield of oil from seeds	38%	42%	7.6% 20%	23.3%	50%	25.8%	47%	50%	50%
Melting Point	22–3°	22°	23° 24–25°	22–25° 19–20°	22–6°	32°	34–45°		
Specific gravity at 25° C.	0.951 0.949	0.958	0.953	0.955 0.9471 at 30°	0.898 at 100°	0.950 at 30°	0.898 at 100° at 15.5°	0.925	0.9049 0.937
Specific rotation at 15° C.	+52.0° +50.3°	+57.7°	+25.5° +51.0° +49.50°	+520.3°	+49.5°	+49.6°	+48.8° at 17°	Inactive	+4.28°
Index of refraction	1.476		1.473 1.4725	1.4770	1.4709	1.4770			1.4665
Acid value	23.9	3.8	7.5	15.6 4.4	216.5	3.9	4.5	4.9	0.52
Saponification value	213	207	212 206.2	202.7 200.3	207.5	188.9	192.4	197	190.2 178–183
Iodine value	103.2	101.3	86.4 90.8	97.6 99.1	87.4 84.4	93.1	99.7 96.5	152.8	113.1 89.9
Chaulmoogric acid	Present	Present	Present	Present	Present	Present	Present	Absent	Present small amounts

any prospects for the successful treatment of leprosy. Accordingly searches were begun for better methods of administration of the drug and for the discovery and isolation of the *active principles* of the oil if such there were. Naturally one of the first attempts in these directions was to administer the drug by subcutaneous injection. The first use of the drug in leprosy by the subcutaneous method appears to have been recorded by Tourtoulis-*Bey*[11] of Cairo in 1899, who had employed it for several years with favorable results but who did not consider the remedy a specific. According to Sandwith,[12] Tourtoulis also used the drug intramuscularly with some success. Shortly afterward Hallopeau[13] reported its use by the same method.

During the next decade the administration of chaulmoogra oil was still beset with difficulties. If administered by the mouth, nausea and digestive disturbances follow; if given subcutaneously it is absorbed slowly since it is a heavy oil; by the intramuscular route its administration is painful, due to the pressure on the nerves, and sores are apt to develop due to the slow absorption of the oil. With the object of finding some form of the oil less obnoxious to the patients when given internally, Amaral and Paranbos[14] used the sodium salts of the mixed fatty acids under the name of *sodium gynocardate.* With the same object in view Hollman and Currie* in 1910 used magnesium gynocardate and sodium gynocardate internally. During these years numerous mixtures of chaulmoogra oil with other substances were

*Stated on the authority of Hollmann and Dean, *Jour. Cut. Dis.*, 37, 372, 1919.

prepared in the effort to render it more fluid, improve its absorption, and reduce its irritating properties when given hypodermically. Thus, Jeanselme[15] used a mixture of chaulmoogra oil, camphor and guaicol. A formula devised by Mercado and Heiser[16] came into considerable use. This was composed of chaulmoogra oil 30 Cc., camphorated oil 30 Cc. and resorcinol 4 Gm. A considerable number of other workers whose names will not be mentioned added to the knowledge of the subject.

Increased interest in the treatment of leprosy by chaulmoogra oil was brought about by the reports of Heiser[17] in Manila who administered the oil over long periods of time by subcutaneous injections. He used the camphorated oil and resorcin mixture previously mentioned. His results were encouraging. Of 16 cases reported some were apparently cured, others showed great improvement and in all the disease was arrested. About this time Dr. Leonard Rogers of India was using orally a mixture of the separated fatty acids of chaulmoogra oil which he called collectively "gynocardic acid." On learning of Dr. Heiser's results, Rogers was led to use the sodium salts of these acids subcutaneously[18] and later on intravenously.[19] The intravenous use of the sodium salts produced reactions in the leprous tissues with breaking down of the acid-fast bacilli followed by great improvement of the patient's condition. In 50 percent of the cases which were treated within three years of the onset of the disease,[20] the lesions disappeared. In cases of from three to fifteen years' duration only 25 percent cleared up. Rogers found that the acids with higher melting points (49° to 62°) were more effective than those of lower melting points (37°). He designated the sodium salts of the total fatty acids as *sodium gynocardate* and the corresponding salts of the higher fatty acids as *sodium gynocardate* "A." Rogers' results, although better than those of his predecessors, were still not entirely satisfactory. Since the bacilli which cause leprosy belong to the acid-fast group, Rogers raised the question[19] whether chaulmoogra derivatives might not have a similar destructive action on another acid-fast bacillus, namely that of tuberculosis. Later, Rogers and Mukerjee[21] used the sodium salts of the fatty acids from *Hydnocarpus Wightiana* which they called "*sodium hydnocarpate*" in leprosy. They consider the results very promising. There was a great reduction and frequent total disappearance of the lepra bacilli and the number of cases in which the lesions disappeared in less than a year of treatment is considered noteworthy. Encouraged by the use of "sodium gynocardate" and "sodium hydnocarpate" in the treatment of leprosy, Rogers[21] was led to try the sodium salts of the mixed fatty acids of cod liver oil which he calls collectively "sodium morrhuate." His results in fourteen cases treated for from 4 to 12 months were somewhat encouraging. He says: "A noteworthy feature of the cases was the very frequent improvement in the general health." In a later report[22] six more cases were reported. Of the entire 20, 12 were much improved, one was not improved, 3 were slightly improved and in 5 the lesions had disappeared. In this connection it is interesting to note that Rogers and his collaborators experimented with "sodium morrhuate" in the treatment of human tuberculosis.[23] Rogers was led to undertake these studies because of the effects which he had found "sodium gynocardate" to produce in breaking up the acid-fast bacilli which cause leprosy. Tuberculosis also is caused by an acid-fast bacillus and Rogers reasoned that since "sodium gynocardate" destroys the bacilli of leprosy, it would most likely have a similar

effect on the tubercle bacillus. And since cod liver oil has demonstrated value in the oral treatment of tuberculosis, it seemed reasonable to hope that it would have a curative effect in this disease if given intravenously in the form of its sodium salts. Rogers states that intravenous injections of "sodium morrhuate" in tuberculous patients produce a slight febrile and local congestive reaction similar to that produced by "sodium gynocardate" in leprous patients, which indicates a definite action in the tuberculous tissue. Improvement in tuberculous cases is seen in the reduction and cessation of the fever, lessening of the expectoration and coughs and a constant gain in weight. The bacilli in the sputum gradually decrease in number and may disappear. The researches were not carried far enough to warrant any very positive conclusions, although the results in general appeared to be promising. This work will again be referred to in connection with the germicidal properties of "sodium morrhuate." Other clinicians[24] have believed "sodium morrhuate" to be of some value in the treatment of tuberculosis, but the remedy must be tested further. Muir[25] used sodium gynocardate "A" by the intravenous method in thirty cases of leprosy. His results were very encouraging. Later, Muir[26] published a supplementary report in which the further progress of these thirty lepers was recorded. He used "sodium morrhuate" in the later treatments but not for a sufficient time to obtain any noticeable results except to observe that it was not so destructive to the veins as the gynocardates. Still later, Muir[27] summarized the results obtained by various clinicians in thirteen Indian leper asylums, by the use of "sodium hydnocarpate" and "sodium morrhuate." With the former drug there was improvement in 132 cases, or 72 percent; much improvement in 58 cases, or 32 percent, and in several cases the lesions entirely disappeared. With sodium morrhuate 33, or 28 percent, of the cases were not improved; 48, or 41 percent, were slightly improved; and 31, or 26 percent, were greatly improved. In anesthetic cases the best results were obtained by the use of "sodium hydnocarpate" but this soon caused blocking of the veins. Sodium morrhuate can then be given. In nodular leprosy, according to Muir, the "morrhuate" appears to be as good as the "hydnocarpate." He believes that both drugs are useful in the treatment of leprosy and that one should be used to supplement the other.

In 1918 Carthew[28] reported treatment of eighteen cases of leprosy by intravenous injections with "sodium gynocardate." He concluded that the improvement in general health of leprous patients under this treatment is so universal that all leprous patients regardless of the type or duration of the disease should be given the treatment. He is of the opinion that there is considerable probability that the treatment is specific and curative. In 1920 Carthew[29] reported further work with sodium gynocardate "A" in which his conclusions were distinctly enthusiastic.

During the past 10 years a great deal of work has been done (it still is in progress) at the U. S. Leprosy Investigation Station in the Hawaiian Islands. As a result of a careful survey of the literature, and from experience in the treatment of 42 cases of leprosy, McCoy and Hollmann[30] of this station had concluded in 1916 that chaulmoogra oil "is helpful to many cases of leprosy, perhaps to a majority." They used the Heiser mixture subcutaneously and supplemented the treatment in most cases by the internal use of the oil. Carbon dioxide snow was used locally where indicated. It was found that weekly injections of 5 Cc. of the mixture (2.5 Cc.

of chaulmoogra oil) were about as much as the average patient could bear well. The oil mixture was sterilized at 100° C. before use.

Until 1918 chaulmoogra oil had been given internally, principally either as such or in the form of its fatty acids or their salts. It had been administered subcutaneously and intramuscularly, alone or mixed with various diluents, or as the sodium salts of its fatty acids. It had been given intravenously, for the most part in the form of the sodium salts of its fatty acids. However, in 1918 a new method came into use which seems likely to supersede the others, at least in some countries. This was inaugurated chiefly by the work of Hollmann and Dean.[31] Dr. Hollmann had been engaged for some time in leprosy investigations in the Hawaiian Islands and Dr. Dean, a chemist of reputation, was president of the University of Hawaii.

In working out the constitution of the fatty acids from chaulmoogra oil, Power and his collaborators[32] prepared the ethyl esters, as well as several other esters, of the fatty acids. In 1909[33] a patent was taken out in Germany by a German concern for the process of preparing the ethyl and other esters of the fatty acids of chaulmoogra oil. At about the same time the same firm took out a patent for the products in Great Britain,[34]—all this despite the fact that the products and the methods for their preparation had been described in the chemical literature several years before by Power and his co-workers and their work had been given wide publicity by abstracts in scientific publications. The ethyl esters were sold by the German firm under the proprietary name of "antileprol." So far as can be learned "antileprol" was intended to be taken by the stomach. It attracted but little attention from the medical profession, perhaps a retribution for the injustice of the patent grants. The ethyl esters are liquids which are soluble in water, thus lending themselves to use by subcutaneous, intramuscular, and intravenous injections.

Hollmann and Dean[31] appear to have been the first to carry out intensive treatment of leprosy with the ethyl esters of the fatty acids of chaulmoogra oil. Dr. Dean, as chemist, prepared the esters and Dr. Hollmann administered them. The remedy was given subcutaneously and, subsequently, intramuscularly. Dean originally separated the oil into four fatty acid fractions and then, on account of their insolubility, converted them into their ethyl esters, thus obtaining thinly fluid oils readily absorbable from intramuscular injections. A group of patients was placed on each of these ester fractions, but after several months' trial, all doing equally well, the separation into fractions was abandoned in 1919, after it became evident that the therapeutic agent was inherent in the entire fatty acid series rather than in any separated fraction, and also that its virtue remained unimpared by any of the chemical or physical operations to which it had been subjected, such as its treatment with acid, alkali, alcohol, lead acetate, etc., or even subjection to a temperature of more than 200° C. The hypodermic treatment was supplemented by the oral administration of the free fatty acids of the oil. In some cases the treatment caused reactions in leprous lesions with subsequent improvement. In several cases the patients became bacteriologically negative so that they were paroled from segregation.

So encouraging were the reports of Hollmann and Dean that Walker and Sweeny[35] undertook to discover by bacteriological methods what foundation exists for the

observed efficacy of chaulmoogra derivatives in the treatment of leprosy. They found that chaulmoogric and hydnocarpic acids possess bactericidal properties about 100 times more active than phenol. The bactericidal activity was found to be specific for the acid-fast group of bacteria and inactive against all other bacteria tested. This peculiar, specific, action appears to be a function of the carbon ring structure of the molecule of chaulmoogric acid and its homologues. The fatty acids of cod liver oil, the salts of which constitute the "sodium morrhuate" used by Rogers and others in the treatment of tuberculosis, were found not to possess the specific bactericidal activity of the chaulmoogric series. Consequently there appears to be no rational basis for the use of cod liver oil products in the treatment of leprosy.

The work of Hollmann and Dean at the Hawaiian Station was continued by McDonald[36] with the collaboration of Dean and Wrenshall[37] as chemists. McDonald administered the esters which had been combined with 2 per cent of iodine. He admits that the presence of iodine has no readily defensible reason and he appears to be nearly convinced that the treatment would be as successful without it. At least certain controls who were receiving the esters without iodine appeared to be progressing as well as those receiving the regular treatment. In later reports[38] most of these cases had been paroled as clinically cured. This would indicate that the iodine with which the esters had been combined previously, actually plays no part, or at least only a minor one. McDonald's standard treatment for weekly intramuscular injection consists of the ethyl esters of the entire fatty acids of the whole oil* with 2 percent of iodine chemically combined, the dosage of which begins with 1 Cc. and is increased by 1 Cc. at every second or third injection until from 2 to 6 Cc., according to the age and weight of the patient, are reached. Internally, the patients receive in capsule form the mixed fatty acids carrying 2.5 percent of iodine. The fatty acids are employed rather than their ethyl esters, because they better conform to the normal digestive process which preceeds fat absorption; the treatment, therefore, makes use by mouth of a predigested oil or fat which is semisolid at room temperature, and, in capsule, very easy to take. Its dosage begins with one-sixth Gm. per hundred pounds of the patient's weight, three times a day, an hour or two after meals. This is gradually increased every two weeks until the maximum of 1 Gm. per hundred pounds of weight per dose is reached. Of these two forms of administration, physicians have gradually come to regard the injection as the vastly more important of the two. In fact, McDonald had ten patients on injections alone for several months, and they seemed to do as well as those who took both injections and capsules. In his latest paper[38] he concludes that the oral administration is not necessary. It should be said for the fatty acids, however, that McDonald considers them the most efficient form of the oil ever devised for internal use. He reports that patients go for weeks at a time without a single complaint of digestive disturbance. With an average treatment of 15 months, 78 patients were paroled from the Station between Oct. 1, 1918 and July 6, 1920. In a later report McDonald[39] states that of a total of one hundred,

*In the most recent technique described by McDonald and Dean the ethyl esters are distilled in a high vacuum before being combined with the iodine. This results in a somewhat more mobile fluid which is believed to be more readily absorbed.

forty-two patients have been paroled as no longer a menace to public health, not one of whom has suffered a relapse.

All leprosy workers agree that the treatment with chaulmoogra derivatives is tedious alike for patient and physician. McDonald says:[36] "Leprosy is such a slow, chronic disease, so insidious and sluggish in its attack and, heretofore at least, so stubbornly rebellious to therapy, that it taxes all the powers of patience and courage both of its victim and his medical attendant. Advantage has to be taken of every helpful measure for the maintenance of a steady, persistent and unflagging course of treatment which knows no faltering and no discouragement. As Dyer has aptly said, 'Above all things individualize the patient; watch for improvement. If it does not show in three months, wait six months; wait a year, or longer. Keep on driving at the treatment until the patient dies or gets well.' And the only place for carrying out this eminently wise and sound advice is a leprosy hospital, and best of all one like ours, maintained by the state, backed by a wholesome segregation law which precludes quitting and going home on the whim of the patient, as now obtains in asylums in the Orient."

"There is a wonderful power in association. A group of fellow leprosy hospital patients forget all about the prejudice and horror with which the outside world regarded them. Here, one is as good as another and no one is sensitive about his or her appearance, and they lead a far more happy and contented life than they possibly could outside. They watch each other, compare notes, see the old-timers getting paroled out; they see some improving more rapidly even if their own case is rather slow, so they go patiently on, whereas an isolated patient would get discouraged, give the treatment a black eye, and abandon it. An attack of leprosy fever, which often confines them to bed for several days, our patients endure with the greatest fortitude, because they have learned from observing fellow patients that when they get over that flare-up they will be better than before. A private patient would say that his physician was poisoning him and would quit."

The latest work by McDonald and Dean[38] has been carried out with the esters prepared from the higher boiling fractions of the acids of chaulmoogra oil. These fractions have very high iodine and refractive index values which indicates that they belong to fatty acids which are relatively more unsaturated than the chaulmoogric series of acids. An acid fraction having an iodine number of about 125 (instead of approximately 90 as for chaulmoogric acid or about 100 as for hydnocarpic acid) was esterified and this product administered in the usual way. The preliminary report indicates that the esters of these more highly unsaturated fractions are particularly efficient in leprosy therapy. One patient has been paroled after only six and one-half months' treatment. Dr. Wrenshall is working on the problem of the isolation and separation of these more highly unsaturated compounds. Since the hydnocarpic acid derivatives are believed to be somewhat more valuable in therapy than the corresponding chaulmoogric compounds, it is possible that acids of the chaulmoogric series of lower molecular weights would be still more efficient. Consequently one of the problems now open to the chemist is the synthetic production of acids of this series with shorter side chains and correspondingly lower molecular weights.

It may be seen from this very incomplete revie w of the literature that at present there are two relatively distinct systems of treatment for leprosy with chaulmoogra oil. One of these is now chiefly championed by McDonald and Dean who use principally the mixed ethyl esters of the fatty acids of chaulmoogra oil by deep intramuscular injections. The free fatty acids from the oil are used internally as supplementary to the intramuscular injections. The other system is represented by Rogers and his followers in India who chiefly use the sodium salts of the fatty acids of chaulmoogra oil, for the most part intravenously. Perhaps the advocates of these systems might be called schools,—the "American school" and the "Indian school." The Indian school experimented with the ester treatment but discarded it after a very brief trial. At this time it is scarcely possible to form an estimate of the relative merits of the two schools. From an impartial examination of the results reported, it would appear that the results obtained by the American school represent the largest percentage of clinically cured cases. The less stringent segregation laws of the Orient and the differences in the races and racial customs of the patients in the two geographical sections, probably are contributing factors in the differential results obtained.

Leprosy, like tuberculosis, is a malady that claims most of its victims from the homes of poverty. The individual whose nutrition is normal rarely contracts the disease regardless of the exposure to infection. In past ages leprosy was of frequent occurrence in all lands, but as social conditions improved with the lapse of centuries, it became less and less common until today it is a rarity in civilized countries. Whatever the treatment in the disease, the value of hygiene, good food and an open air life is emphasized by all clinicians.

Although results are being published almost daily which appear to indicate that derivatives of chaulmoogra oil may be almost specific in the treatment of leprosy, yet among the many clinicians who have recorded their experiences with these drugs there are none, apparently, with the possible exception of McDonald,[38] who have been willing to assert dogmatically that leprosy can be cured. Most of these writers are careful to state that it is as yet too early to exclude possible relapses in the seemingly cured patients. However, with numerous patients in whom the diagnosis of leprosy had once been positive by bacteriological and clinical tests, now on parole, bacteriologically negative and free from symptoms, the outlook for permanent cures would seem to be distinctly hopeful. It seems plausible to suppose however, that even if the most sanguine hopes of the present day investigators of leprosy be realized, there will always remain some cases which will prove intractable to the chaulmoogra treatment or to any other treatment which may be discovered. Some cases, too, will continue to escape segregation, so that the spread of the infection will not be stopped. Consequently the entire disappearance of leprosy from the earth will not be likely to be realized during the lifetime of any now living, and possibly not for many generations to come.

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37. Dean and Wrenshall, "Fractionation of chaulmoogra oil," *Jour. Am. Chem. Soc.*, 42, 2626, 1920.

38. McDonald and Dean, "The constituents of chaulmoogra oil effective in leprosy," *Jour. Am. Med. Assoc.*, 76, 1470, 1921.

39. McDonald, "Treatment of leprosy with the Dean derivatives of chaulmoogra oil," *Ibid.*, 76, 1121, 1921.

DRUG TOPICS.*

No. 5. Curing of Japanese Burdock.

BY W. E. CLEOPHAS.[1]

Through the kindness of Mr. Susuki a small package of Japanese burdock seeds was obtained. The root of the Japanese burdock is also used as a vegetable. The roots are reported to acquire a large diameter.

Dr. Fischer reported that he had obtained large plants, and late in October dug up roots almost an inch in diameter or a little more. When cooked and prepared with a white sauce they reminded him of the taste and flavor of the egg plant.

For the purpose of comparing them as a drug with American burdock, the plants raised by Edward Kremers in 1909 were utilized. The Japanese seeds had been sown in spring in the same place where the year before American burdock had been raised. Unfortunately, for an exact comparison, the plants were not thinned out as early as they ought to have been. As a result the plants did not develop as finely as did those of the previous year.

FALL COLLECTION. For the purpose of curing, roots were dug up from time to time after the middle of October. Following the method of the previous year, part of the roots were cut longitudinally, *i. e.*, the conventional way, and partly into cross sections. Some were dried at room temperature, others at different temperatures in drying ovens. It having been found that 70° apparently was the best temperature for curing the roots, a beginning was made with this temperature, other temperatures being selected both upwards and downwards at intervals of ten degrees.

Drying at 70°. In a preliminary experiment no hourly record was made of the loss of water due to drying. At the end of about 9 hours, 92.49 grammes of cross sections weighed 25.32 Gm., hence a total loss in weight of 67.17 Gm. or 72.6 percent. 139.88 of the longitudinal sections weighed 37.75 Gm. at the end of about seventeen hours, hence a loss in weight of 102.05 Gm. or 72.9 percent.

* From the Laboratory of Edward Kremers.

[1] Walter E. Cleophas, "The Curing of Burdock," Thesis, University of Wisconsin, 1910.

In a second experiment the loss of water was recorded at regular intervals as recorded in the following table:

Length of exposure in hours.	Longitudinal Sections.			Cross Sections.		
	Weight of roots.	Loss of weight per hour.	Aggregate percentage loss.	Aggregate percentage loss.	Loss of weight per hour.	Weight of roots.
	143.8 Gm.	.....	.....	.....	.....	137.15 Gm.
1	109.5 Gm.	34.30 Gm.	23.8 p. c.	.....	.....	.....
2	72.5 Gm.	34.30 Gm.	49.5 p. c.	23.95 p. c.	32.85 Gm.	104.3 Gm.
3	55.55 Gm.	16.95 Gm.	61.36 p. c.	48.00 p. c.	33.0 Gm.	71.3 Gm.
4	48.7 Gm.	7.85 Gm.	66.13 p. c.	64.27 p. c.	22.3 Gm.	49.0 Gm.
5	43.15 Gm.	5.55 Gm.	69.99 p. c.	69.34 p. c.	6.95 Gm.	42.05 Gm.
6	42.5 Gm.	0.65 Gm.	70.44 p. c.	71.57 p. c.	3.05 Gm.	39.0 Gm.
7	41.7 Gm.	0.70 Gm.	71.00 p. c.	72.22 p. c.	0.9 Gm.	38.1 Gm.
8	41.3 Gm.	0.40 Gm.	71.27 p. c.	72.35 p. c.	0.18 Gm.	37.92 Gm.
9	41.0 Gm.	0.30 Gm.	71.48 p. c.	72.35 p. c.	0.00 Gm.	37.92 Gm.
10	40.75 Gm.	0.25 Gm.	71.66 p. c.	72.35 p. c.	0.00 Gm.	37.92 Gm.
11	40.50 Gm.	0.25 Gm.	71.83 p. c.	.....	.....	.....
12	40.30 Gm.	0.20 Gm.	71.97 p. c.	.....	.....	.....
13	40.10 Gm.	0.20 Gm.	72.11 p. c.	.....	.....	.....
14	39.95 Gm.	0.15 Gm.	72.21 p. c.	.....	.....	.....
15	39.80 Gm.	0.15 Gm.	72.32 p. c.	.....	.....	.....
16	39.70 Gm.	0.10 Gm.	72.39 p. c.	.....	.....	.....
17	39.70 Gm.	0.00 Gm.	72.39 p. c.	.....	.....	.....
18	39.70 Gm.	0.00 Gm.	72.39 p. c.	.....	.....	.....

Drying at 80°. 95.25 Gm. of cross sections, at the end of about 8 hours, weighed 25.5 Gm., a total loss in weight of 69.75 Gm. or 73.3 percent.

147 Gm. of longitudinal sections weighed 41.04 Gm. at the end of about 15 hours, a loss in weight of 105.96 g. or 72.7 percent.

SPRING COLLECTION. In the spring of 1910, roots were collected from the garden of Professor Kremers. They were thoroughly cleansed of dirt, cut into longitudinal and cross sections and dried at 60°, 80° and 90° C. The loss of weight was determined hourly, and the percentages computed. As compared with results obtained in the fall of 1909 the results vary considerably.

The results obtained with the roots collected in the spring are herewith tabulated:

Drying at 60°.

Length of exposure in hours.	Longitudinal Sections.			Cross Sections.		
	Weight of roots.	Loss of weight per hour.	Aggregate percentage loss.	Aggregate percentage loss.	Loss of weight per hour.	Weight of roots.
	57.55	...	...	...	...	60.85
1	38.6	18.95	32.92	40.76	24.75	36.1
2	16.2	22.4	71.85	74.85	20.8	15.3
3	11.2	5.0	80.53	84.55	5.9	9.4
4	8.85	2.35	84.62	84.96	0.25	9.15
5	8.65	0.2	84.96	85.04	0.05	9.1
6	8.6	0.05	85.05	85.12	0.05	9.05
7	8.55	0.05	85.14	85.16	0.02	9.03
8	8.52	0.03	85.19	85.17	0.01	9.02
9	8.5	0.02	85.23	85.17	0.00	9.02
10	8.48	0.04	85.26	...	...	...
11	8.48	0.00	85.26	...	...	...

Drying at 80°

Length of exposure in hours.	Longitudinal Sections.			Cross Sections.		
	Weight of roots.	Loss of weight per hour.	Aggregate percentage loss.	Aggregate percentage loss.	Loss of weight per hour.	Weight of roots.
	57.15	...	...	...	...	53.5
1	28.6	28.55	49.56	49.43	26.45	27.05
2	12.5	16.1	78.12	89.3	16.85	10.2
3	7.8	4.7	86.35	86.72	3.1	7.1
4	7.7	0.1	86.52	86.91	0.1	7.0
5	7.6	0.1	86.7	87.0	0.05	6.95
6	7.57	0.03	86.75	87.1	0.05	6.9
7	7.56	0.01	86.77	87.1	0.00	6.9
8	7.55	0.01	86.78	...	...	...
9	7.55	0.00	86.78	...	...	...

Drying at 90°

Length of exposure in hours.	Longtitudinal Sections.			Cross Sections.		
	Weight of roots.	Loss of weight per hour.	Aggregate percentage loss.	Aggregate percentage loss.	Loss of weight per hour.	Weight of roots.
	58.3	...	...	...	...	64.3
1	29.15	29.15	50.0	55.28	35.55	28.75
2	10.1	19.05	82.67	48.91	17.05	9.7
3	9.9	0.2	83.01	85.07	0.1	9.6
4	9.85	0.05	83.1	85.14	0.05	9.55
5	8.77	0.08	84.95	85.24	0.05	9.5
6	8.7	0.07	85.06	85.24	0.00	9.5
7	8.67	0.03	85.12	...	...	...
8	8.67	0.00	85.12	...	...	...

It becomes apparent from the results tabulated that the cross sections lose their moisture in less time than do the conventional longitudinal sections. Inasmuch as the cross sections afford a better appearing drug, it would seem best to discard the customary longitudinal cutting for the purpose of curing this drug.

Another point worth calling attention to is this, namely, that whereas the roots harvested in fall lost 72+ percent of moisture those harvested the next spring lost 85+ percent. Additional experiments will be necessary to show whether this is due to loss in carbohydrate content during the winter or to water absorption.

It has already been stated that earlier experiments have revealed the desirability of drying the roots at 70°. The three series of experiments with the roots collected in spring show again that little or nothing appears to be gained by higher temperatures, whereas the drug may suffer in appearance because of what may be called caramelization, for want of a better term. In this connection, attention should again be directed to the fact that the thermal death point of the oxidase contained in the root lies not much above 70°, hence danger from causing the root to become discolored because of action of oxidase on so-called chromogen is practically averted at this temperature.

That the darkening of the root due to exposure is brought about by an oxidase can readily be demonstrated by testing the fresh cross section of the root with tincture of guaiac. This reagent is colored a deep blue by the oxidase, whereas the corresponding parts of the root are colored brown by exposure to air.

NOTES ON AGAR—MOISTURE AND ASH CONTENT.

BY E. L. NEWCOMB AND C. E. SMYITHE.

Agar is a drug which appears always to contain a considerable amount of water. Earlier, the water content of six samples was reported. Each of these contained from 11 to 15 percent of moisture. The drug is one which is likely to rapidly take up water from the atmosphere unless it is stored in a dry room or air-tight container. The moisture taken up from the atmosphere may amount to as much as 33.7 percent.

In order to gain further information on the moisture and also the ash content of this drug, six additional samples have been worked. The samples were each dried for twenty-four hours in a small drying oven, run at a temperature of about 120° F. The samples were then ground in a small hand mill to a number 20 powder and ashed.

Some reference has been made to inferiority of quality of Agar. All of the samples which we have been able to obtain thus far have been of excellent appearance. A few only were slightly yellowish in color. Samples which are off in color contain a larger number of diatoms. The dark samples run slightly higher in ash.

Our additional results are tabulated herewith, as follow:

Sample No.	Source of Sample and Remarks.	Moisture.	Total Ash.	Ash insoluble in 5% HCL.
1.	Commercial whole, bought in 1920, extra light color...	11.3	3.94	0.43
		.....	4.01	0.62
2.	Commercial whole, bought in 1920, very light color....	13.3	3.84	0.62
		.....	3.93	0.47
3.	Commercial granulated, bought in 1920, medium color.	18.3	4.13	0.63
		.....	4.09	0.83
4.	Commercial whole, bought in 1920, medium color.....	15.9	4.36	0.61
		.....	4.33	0.68
5.	Commercial granulated, for culture media, bought 1918, dark.....	11.1	4.42	0.95
		.....	4.58	0.96
6.	Commercial whole, bought in 1918, dark color.....	8.02	4.32	1.10
		.....	4.35	1.20

DEPARTMENT OF PHARMACOGNOSY,
COLLEGE OF PHARMACY,
UNIVERSITY OF MINNESOTA.

ASPIDIUM STANDARDS.

BY E. L. NEWCOMB.

Inability to obtain supplies of the drug Aspidium has made it somewhat difficult to check up on some of the present requirements. It appears that practically no drug has entered the country during the last four or five years. The oleo-resin has, however, been imported. Some six different orders were placed for whole Aspidium. Not a single order has been filled. The studies which are reported herewith were made with crude material purchased several years ago, and with fresh plant material grown in the Medicinal Plant Garden of the College of Pharmacy, University of Minnesota.

It will be noted that the ash yield of the freshly prepared stipes from the Minnesota drug was somewhat higher than the present allowance of 3 percent. One entire plant was used for this work. The stipes were not as large and fleshy as those usually obtained in commerce. The species represented by the Minnesota drug was *marginalis*. The ash yield of the old samples of commercial drug would indicate that the present standard is satisfactory. The high total and acid-insoluble ash of the scrapings and cleanings indicates the need for care in removal of outer portions during the preparation of the drug. The high acid-insoluble ash of the samples of Osmunda sold as Aspidium clearly indicates the desirability of an acid-insoluble ash standard for this drug. The very nature of the Osmunda rhizome makes the careful cleaning of it a rather difficult and tedious process. It appears that the normal ash of Osmunda is about 2 percent.

If supplies of Aspidium can be obtained, further studies will be made not only on the ash, but also in the filicic acid content.

TOTAL AND ACID-INSOLUBLE ASH OF ASPIDIUM DETERMINATIONS—BY C. H. ROGERS AND C. W. FOLKSTAD.

No.	Remarks.	Percent Total Ash.	Percent Acid-insoluble Ash.
1.	Aspidium, powdered, old commercial sample	2.80	0.36
		2.76	0.27
2.	Aspidium, whole, commercial, old, powdered in this laboratory	2.69	0.67
		2.64	....
3.	Aspidium, whole, commercial, old, powdered in this laboratory	2.64	0.50
		2.62	0.32
4.	Osmunda, sold for Aspidium, powdered in this laboratory	4.06	2.29
		4.20	....
5.	Osmunda, sold for Aspidium, powdered in this laboratory	3.38	2.31
		3.36	2.28
6.	*Dryopteris marginalis*, peeled stipes, Minnesota grown plant	3.95	0.12
		3.79	0.09
7.	*Dryopteris marginalis*, whole stipes, not peeled, from Minnesota grown plant	4.18	0.67
		4.17	0.61
8.	*Dryopteris marginalis*, peelings from stipes, Minnesota grown plant	4.17	0.50
		4.18	0.50
9.	*Dryopteris marginalis*, scrapings and cleanings from Minnesota grown stipes	8.31	4.57
		8.51	....
10.	*Dryopteris marginalis*, roots from one plant, Minnesota grown	3.21	0.46
		3.15	0.21

DEPARTMENT OF PHARMACOGNOSY,
COLLEGE OF PHARMACY, UNIV. OF MINN.

THE STABILITY OF CHURCHILL'S TINCTURE OF IODINE.*

BY JOSEPH L. MAYER.

Solutions of iodine in alcohol are very unstable and as a result the U. S. P. tincture of iodine contains potassium iodide which very effectively prevents decomposition.

About two years ago, we had a query submitted to us as to whether Churchill's tincture of iodine made according to the N. F. formula with only 3.3 grammes

*Read before New York State Pharmaceutical Association, June, 1921.

potassium iodide to 16.5 grammes of iodine per 100 Cc. was subject to decomposition. In view of the fact that the U. S. P. tincture of iodine contains 5 grammes of potassium iodide to 7 grammes of iodine per 100 Cc. it was contended that there is insufficient potassium iodide in Churchill's tincture of iodine to prevent decomposition and, therefore, a preparation which had been made for a time, would upon analysis show a shortage of free iodine.

A search of the literature failing to show any data on the subject, I reassayed an old laboratory sample in order to have facts upon which to base an opinion. Recently, I made another analysis of this same sample, the results of all analyses being as follows:

Date of Analysis.	Iodine. Gm. per 100 Cc.	Potassium Iodide. Gm. per 100 Cc.
December 17, 1914.	16.0211	3.9941
April 26, 1919.	16.0198	3.9800
May 18, 1921.	15.9110	3.9940

These results prove that Churchill's tincture of iodine is a stable preparation, there being no loss of free iodine after six and one-half years.

RESEARCH AND ANALYTICAL LABORATORIES OF THE
LOUIS K. LIGGETT COMPANY, NEW YORK.

FRUIT AND ITS FUNCTION IN THE HUMAN ECONOMY.

BY R. A. KUEVER.

One of the wise provisions of nature is to protect the various parts of the human body in a careful and interesting fashion. The eye, for example, is protected by a bony structure practically surrounding it. The heart is not only protected by bony tissue to ward off blows, but by a set of muscles created largely for that purpose. Men who frequently engage in fistic encounters develop these muscles by exercise to withstand the more vigorous blows. The brain is protected by a veritable strong box of bone. So resistant is this box, commonly known as the skull, that it will withstand some surprisingly vigorous blows. It is not an uncommon occurrence for people to fall great distances, lighting on their heads, and yet sustain no permanent injuries. Only recently an unusual case is reported from Merrimac, Alabama: A man, who is at the hospital recovering, was kicked on the head by a mule. The animal was so seriously crippled by the impact that it was immediately shot. This, no doubt, is an extreme case, but it goes to show how well nature does protect.

The most interesting protection nature provides for the body is the fluids which bathe the various parts—the kidneys, the heart, the lungs, the stomach, the bowels; in fact, every organ. The teeth, the mucous membrane of the throat, the eye, the vocal cords, and the delicate cells of all the tissues are protected by these ever-present fluids.

Ninety-three percent of the body is water of which these protecting fluids are very largely composed. Only traces of proteins and mineral salts are found in them. Nature has provided and arranged this wisely and these fluids contain precisely what the tissues need to protect and, in many cases, nourish them. Without these fluids the various parts of the body would soon cease to function. With one or more of the constituents missing, their protecting power would be greatly impaired, if not entirely destroyed.

The amount of a given substance is no index of its importance. An example is iron. The average adult body contains from 2.5 to 3.5 grammes of iron—a mere trace compared with the entire weight, yet life would soon cease if the daily assimilation of iron, from 5 to 10 milligrammes, should stop. When only a part of this daily iron intake is affected a symptom commonly known as anemia results. Other examples of important substances existing in minute quantities are the hydrochloric acid, 0.3 percent, in the gastric juice, and the sodium carbonate, 0.25 percent, in the intestinal juice. In the absence of the hydrochloric acid, the ferment pepsin, which it activates, ceases to function and gastric digestion stops. In the absence of the sodium carbonate, intestinal digestion will cease since this alkali is necessary to activate the ferments of the pancreatic juice. Without gastric or intestinal digestion food assimilation is impossible and the body will soon starve.

These two very important substances, the hydrochloric acid and the sodium carbonate, are formed from the sodium chloride which is taken with food as a condiment. During the reign of Napoleon it was customary for the French to banish their political prisoners to an island where they were fed foods entirely devoid of salt. It is said that the average length of the life of prisoners so fed was three years.

When these protecting fluids are normal in composition they function as nature intends they shall, but when they become abnormal they may, entirely or in part, cease to perform their duties. Abnormal secretions may even bring about pathological conditions frequently mistaken for disease and treated as such. Nephritis—all acidosis for that matter is an example. The fluids become excessively acidic and set up an irritation. The irritation is not the disease and a treatment for this symptom will avail nothing. The disease is the cause for the change in the fluid and a treatment which will remove the cause for the excessive acidity will also allay the irritation. It is sometimes very difficult, if not impossible, to ascertain the reason for the change in the composition of the fluid. Fundamentally it is a violation of natural laws. This violation may be unconscious. Many of nature's laws are broken by present-day modes of living. Baldness is an example. Not until civilization combined the present head gear with our modern diet and the strain of business worries, did baldness exist. Not a single instance of baldness has been found among the uncivilized. However, races previously free from baldness soon accept the fashion of shiny domes as civilization is thrust upon them.

The fluid which has been affected most by the violation of nature's laws through the process of civilization, is the saliva, and while not generally known, the saliva, next to the blood stream, is the most important fluid. Indirectly more systemic symptoms, commonly called diseases, can be traced to pathological or abnormal saliva than to any other fluid in the body. Dental caries, commonly known as tooth decay, which has increased from 3 to 93 per cent in the past two centuries, is directly traceable to abnormal saliva. Dental caries is a chemico-parasitic phenomenon. Acids formed in the mouth by fermentation attack the inorganic portion of the enamel and destroy it. This inorganic portion is substantially tri-calcium phosphate. The acid formed by fermentation is substantially lactic acid. The lactic acid reacts with the tri-calcium phosphate forming mono- and di-calcium phosphate and calcium lactate. The salts are soluble and this solution, with the

removal of the calcium salt from the enamel, is the first step in dental caries. The organic structure of the enamel is collagen. When the tri-calcium phosphate has been removed by the process just described, the collagen is attacked by a proteolytic ferment, secreted by organisms in the mouth, and is digested and rendered soluble and hence the cavity is formed. These two processes are continuous and simultaneous and extend over varying periods of time. The initial acid attack merely causes a slight roughening on the enamel surface, which makes it easier for subsequent agglutinated food particles to attach themselves. After corrosion once begins, the tooth is soon doomed unless the deposits are constantly wiped off by careful brushing.

If food components are properly proportioned the acid formation is materially reduced and if the oral secretions function as nature intends, these acids will be instantly neutralized and the attack on the enamel prevented. Present-day diet causes not only excessive masses of agglutinated food particles to cling to tooth surface and ferment into acids, but it reduces the flow and increases the viscosity of the saliva to such an extent that it is entirely unable to cope with the acids that form. This condition is usually spoken of as "acid mouth."

Abnormal saliva is largely the cause of deposits on the teeth. These deposits are at first soft and mucilagenous and are known as mucin plaques. They soon gather up inorganic salts precipitated from abnormal saliva and then harden into what is known as tartar. The tartar produces a seat of gum irritation by getting under the margin. This irritated area forms an excellent mobilizing and multiplying field for the organisms in the mouth and soon develops into pyorrhea. With pyorrhea there is recession of the gums, a very rapid multiplication of not only the micro-organisms, but the pus and toxins they produce. Much of this poison is taken into the system by being swallowed and frequently produces infections of the heart, lungs, kidneys, bladder, stomach, blood-stream, etc., etc.

A normal saliva, then, plays a very important part, providing for the welfare of the teeth and mouth, and indirectly, the entire system. Unfortunately, civilization has brought with it a diet which has materially affected the fluids of the mouth—the oral secretions as they are known to the dental profession. The saliva is so changed that it cannot perform the protecting function for which it is intended. Unless a radical change in diet is soon adopted it is reasonable to suppose that the race will be toothless a century or two hence.

Fortunately science is unfolding a simple and pleasant way to overcome this condition and those who heed as they read may yet be spared the disgrace of a toothless progeny. The gospel of this corrective process in many steps, grouped together under the scientific name of oral hygiene, is being disseminated from many sources. Of these the dentist is perhaps the most authentic and efficacious. However, the school nurse, the municipal and industrial clinics, the child welfare stations, the physicians, and the manufacturer of dentifrices are all doing their part to acquaint the public with the principles and necessities of oral hygiene. This propaganda has been going on for less than half a century and extensively and intensively only during the last decade. From twenty-five to thirty million people in the United States adhere to the rules of oral hygiene, leaving seventy-five to

eighty million still to be reached. The pharmacist should take an active part in this campaign by distributing literature pertaining to the various phases of oral hygiene and providing proper and efficacious dentifrices and tooth brushes.

Unfortunately children, during their first dentition as well as the first eight to ten years of their second dentition, are most seriously affected. The present-day diet not only changes the composition of the fluid in the mouth so that its protecting power is impaired, but it brings into the oral cavity a food component which is easily changed into destructive acids. This food component is starch and more particularly the well-cooked or toasted variety, commonly known as prehydrolysed starch. Examples of prehydrolysed starch foods are pastry, pan cakes, toast, etc. Candy and foods rich in sugar fall in the same group. It must not be supposed that this important carbohydrate group can be eliminated from the daily diet, for it is necessary in a properly nourished body.

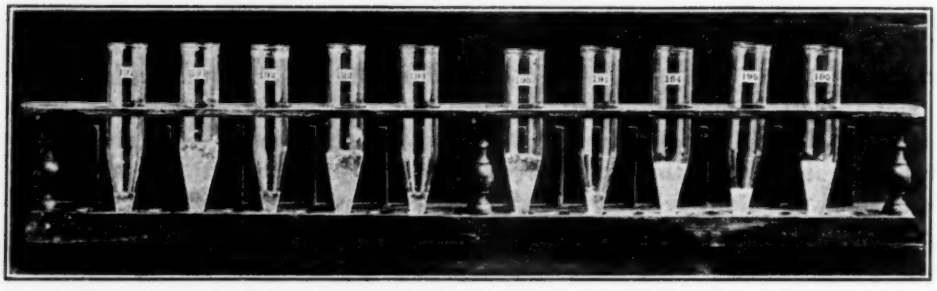
The present problem is to reconstruct our diet so that the saliva may perform its function normally. Some foods, particularly those of the carbohydrate group, have a depressing effect upon the oral secretions, making them more viscous and thus impairing their bathing and protecting power. Evidence of this is found in the desire for a drink of water after several pieces of candy have been eaten. Fruits, on the other hand, have a marked stimulating effect upon the oral secretions, making them more fluid and alkaline and increasing their bathing and protecting power. Evidence of this is the large quantity of fluid, alkaline saliva a taste of orange or lemon produces, and hence the expression, "It makes the mouth water."

A considerable portion of each meal should be fruit, preferably fresh, and if that is not available, preserved fruit. All meals should be opened and likewise closed with tart fruit products. By opening the meal with fruits the saliva functions normally. By closing the meal with fruit the saliva is left in a normal condition to cope with any acidity which may subsequently form. Food products like toast, pastry, etc., should never be eaten unless accompanied by tart preserves. Jam or jelly on bread is an excellent combination. Bread alone produces an abnormal condition in the mouth, while the presence of the jam or jelly overcomes that. The custom of beginning breakfast with a grape fruit or an orange is an excellent one. It should be extended to the other two meals. However, only one-half of the grape fruit or orange should be eaten before and the other half after the meal.

Apples are an excellent article of diet. Their mild acidity causes a salivary stimulation which brings about a normal condition in the mouth made abnormal by civilized diet. Grapes or grape products, such as unfermented grape juice, forms an excellent adjunct to the diet. Coffee, tea and cocoa are salivary depressants and have no place in the daily diet, especially if taken during the meal. Lemonade or buttermilk, on the other hand, will aid materially in bringing about a desired and normal condition.

Some fruits stimulate the oral secretions more than others. All fruits stimulate the saliva more or less and hence all fruit products are valuable additions to the daily diet. The following photographic illustration shows the amount of salivary stimulation the more common fruits produce.

Salads, composed of fruit or vegetables, with tart dressings are a necessary component of the meal. The importance of this has heretofore been entirely under-



The above photographic illustration shows how fruit juices stimulate salivary flow. Tube No. 191 (left) contains the saliva normally produced in one minute in the mouth of Mr. F——. Tube No. 191 (right) contains the amoun of saliva secreted in the same mouth in the same length of time after stimulation by means of lemon juice. Tubes No. 192 (left and right) represent the same condition excepting in a different mouth with apple juice as the stimulant. Tubes No. 193–193 represent still another mouth and orange juice, while 194–194 shows the stimulating power of grape juice, and 195–195 that of pineapple.

estimated. The well-known combination of cakes and syrup, so frequently served at breakfast, is a most impossible combination. The very physiology and chemistry of the mouth indicates that nature never intended such a combination to be put into the oral cavity. In many cases titration shows the saliva distinctly acid two hours after such a breakfast has been eaten. Both syrup and cakes depress the oral secretions very noticeably, so much so in fact that a diluent is generally necessary to wash the coagulum down. Cakes, covered with tart preserves, however, produce an entirely different condition, one which is more nearly normal. Roast pork and apple sauce is a well-balanced combination, while thickened gravy on potatoes, and sugar and cream on rice, tapioca or breakfast foods, are distinctly incompatibilities. A good general rule is to accompany each bit of ordinary food with a bit of tart fruit product, masticating the two thoroughly together. The sanest and soundest dessert is of tart fruit with the demi-tasse entirely eliminated from the menu.

Hyperacidity, gastric indigestion and ulceration is so common with the American race that it is being referred to as the "American Stomach." Improperly constructed diet, directly, abnormal conditions of the teeth and oral secretions indirectly, have contributed to this extremely prevalent condition of acidosis. A carefully balanced diet will do a great deal to overcome the difficulty, especially those cases which are in the incipient stage. Experiments have proven that the alkaline indices of the secretions of the body can be increased six to eight times by the proper selection of articles of food.

The care of the mouth, including systematic brushing of the teeth, is very important, but secondary to the composition of the diet. Teeth should be carefully brushed five times daily,—upon arising, after each meal and at bedtime. Before retiring is the most important time to brush the teeth since the interval between this brushing and the one before breakfast is the longest in which any adhering deposits may ferment to form acids. Moreover, during the hours of sleep the flow of saliva is materially diminished and the teeth are deprived of its protecting influence.

The method of brushing is important as well as the selection of a dentifrice. The teeth should be brushed vigorously from the gums to the biting surfaces. The upper teeth, therefore, should be brushed only in a downward direction, while the lower ones are brushed in an upward stroke. In this way gum recession may be prevented. In brushing the upper teeth with an upward stroke and the lower teeth with a downward stroke the gums are brushed away from the enamel margin resulting in recession. Receded gums expose dentin areas which are very susceptible to decay. Under no circumstances should teeth be brushed cross-wise because this type of brushing will produce erosions.

Only dentifrices, either powders or pastes, which are mildly acidic in character, should be used because of the stimulating effect such preparations have on the oral secretions. Tart fruit juice is the most necessary and essential ingredient in a dentifrice. Soaps and other alkalies, so commonly found in the old-time dentifrice, are contra-indicated in the mouth. They found their way into dentifrices purely by accident, as history reveals, several centuries before the beginning of the Christian era. Their extensive use during the last century has contributed materially to the alarming increase in dental decay. Soap and alkalies are excellent detergents for the removal of fats and grease deposits and for this purpose largely employed in the laundry and kitchen. The deposits on teeth are albuminous, containing agglutinated masses of starchy debris and mineral salts Alkalies will cause these deposits to become more adhesive. Alkalies, moreover, practically inhibit the flow of saliva, at the same time making it very viscous so that its bathing and protecting power is completely lost. Gies, of Columbia, urges the use of vinegar, diluted with water, as a mouth and tooth wash. Pickerill, of Otago, recommends a 1 % solution of potassium bitartrate. The latter would be the equivalent of a bunch or two of grapes, while the diluted vinegar might be compared with an apple so far as the effect on the oral secretions is concerned.

University of Iowa,
College of Pharmacy.

A WAR-TIME VISIT WITH A FRENCH PHARMACIST.*

BY CLYDE L. EDDY.

Finding, as so many others had found before me, that my pharmaceutical qualifications were apparently of little use in the Army, I enlisted as a photographer early in the spring of 1918 and went overseas a few weeks later with the 39th Division—a husky lot of soft singing, hard swearing fellows from somewhere south of the Mason and Dixon Line. My equipment consisted principally of a Graflex camera and a .45 caliber Colt's automatic, a queer outfit, you will admit, for a man of pharmaceutical tendencies and training.

The division survived the trip across and the ordeal which had been prepared for all American troops landing at Brest; and the particular group to which I was attached arrived at length at a little village called St. Florent, where it was intended that we should be finally whipped into shape so that we, in turn, might finally whip certain members of the Potsdam crowd.

*Read before section on Historical Pharmacy, A. Ph. A. Washington Meeting, 1920.

We reached St. Florent late one afternoon and were marched at once to the stables that had been allotted to us. I have slept in some of the oldest and finest stables in France. Before I left there I could not pass one of them without wondering what kind of a place it would be to sleep in. That first night in St. Florent a rat fell, or was pushed by others, from a rafter overhead and dropped upon one of the fellows and he complained about it mildly, but that was his first night in a French stable; a few weeks later he would have thought nothing of it. St. Florent rather stands out in my mind because I had a bath there, my first since leaving Camp Merritt twenty-two days before. It was a simple, primitive bath. A walk in the rain down to the river and the deed was done. Later on, one time, when I was at the front, I went thirty-two days without a bath but I do not recommend this abstinence from ablutions for general adoption, and the Doughboy practice of keeping one's shirt on until it wore off was entirely the result of inadequate hotel facilities and the habit is one that few of the men have retained in civil life.

I "rode the gravy wagon" the entire week I spent in St. Florent. There were only three photographers in the entire division and it was easy for us to get lost. I roamed around the streets and showed up at the billet only at meal time. On the second day I discovered a drug store, or *pharmacie*, that looked interesting and went in, determined to try out my Army French on the defenseless proprietor.

Mustering up the phrases that I had rehearsed for the occasion I said to him when he stepped out to greet me, "*Bon jour, Monsieur. Je suis un pharmacien Americain.*" ("Good morning, sir. I am an American pharmacist" — or as near to that as I could make it.) His kindly eyes lighted up and I knew that I had "landed." Then came the shock. He extended his hand and said in perfect English, "Good morning, I am glad to see you."

Then he invited me to the rooms back of the store where he lived and placed before me delicious hot chocolate and some most remarkable old wine. He had learned to speak English during a long visit in London. He seemed genuinely glad to see me and showed me pictures of his two sons, both of whom were with the French Army. He told me that he, too, had been called at the outbreak of the war and that he had served for some time as a major.

At my request he showed me his store and laboratory. His store was hardly a dozen feet square and was devoted to drugs and pharmaceuticals exclusively. No, there was one tiny drawer filled with proprietery remedies and he apologized for having them. His laboratory was quite elaborate and much of his time was devoted to the analysis of urine, wine, milk, soil, and water. Also he manufactured valerianic acid and valerianates as a sort of specialty or "side line." His only assistants were two women, one of them his daughter.

The French pharmacist is a much respected member of the community in which he resides. The competition between pharmacists is not so much of the commercial as of the professional variety and they visit a good deal with each other. During the winter of 1918, M. Bouge told me, he and his confreré in the little town were called upon to visit in their homes persons suffering with influenza and to prescribe for them because of the lack of physicians. As I have stated before, he was a major in the French Army, and was quite surprised when I told him some-

thing concerning the status of pharmacists in our army. It appears that the dentist is the one who has not adequate professional recognition in France.

The *pharmacies* in the smaller towns are opened at eight or nine in the morning and closed at six in the evening—with an hour and a half out for lunch in the middle of the day. Practically all of the French stores are closed from 12 until 1:30 or 2 each day so that their proprietors may enjoy their lunches undisturbed.

There are two kinds of drug stores in France—the *pharmacie* and the *herboristerie*. The *pharmacies* are operated by trained, professional pharmacists and little is sold in them except drugs, chemicals and prescriptions. The *herboristerie*, on the other hand, is a more commercial organization. The proprietor is required to do a certain amount of studying—principally on materia medica—and is licensed to sell almost all drugs except certain poisons and, of course, is not permitted to compound prescriptions. In these stores they sell crude and household drugs, hospital and sick room supplies, perfumes, brushes, manicure articles, bandages, hair curlers, sponges, and many other similar articles of merchandise.

The *herboristerie* has a competitor in the barber shop. The barber sells toilet preparations and perfumes and makes rather an elaborate window display of his wares. A French barber shop is a peculiar institution. The barbers use the, to us, old fashioned strop on a wooden handle and their razors are seldom sharp. After the shaving ordeal is over the customer gets out of the chair and washes his own face in a nearby bowl. Then, as he goes out, he drops one or more of those heavy French coins—"clackers" the fellows called them—in a sort of coin box and a bell rings, whereupon every barber in the shop turns around and bows to him. It gives one quite a sensation.

Much has been said concerning the possibility of establishing two kinds of drug stores in the United States; perhaps it would be well to study the working of such a system as it exists in France before attempting changes in that direction here.

BACON CIPHER A TARGET OF CRITICS

There is reason for skepticism relative to the Roger Bacon cipher manuscript. Mystery seemingly surrounds the source, and the revelations are astounding. We quote the *New York Times* and *New York Tribune* on the subject:

(From the *New York Times*.)

That Roger Bacon conceived certain scientific ideas far in advance of his time has been known ever since the world came abreast of them. If, as Dr. Newbold asserts, it can now be proved that he made use of the telescope, the fact will be cheerfully accepted. It is even possible that he possessed a microscope and by means of it discovered the cellular structure of tissue and recorded the life history of a fertilized cell. But when Dr. Newbold asserts that Friar Bacon himself was five centuries in advance of his time and that if he had "made his discoveries known" the fact would have "put our scientific knowledge centuries ahead of what it is today," credulity falters and is dumb.

(From the *New York Tribune*.)

This new Baconian cult has points in its favor and points against it as compared with the old Bacon-Shakespeare madness. The worst feature of its case is the uncertainty attaching to any manuscript which has kicked about Europe from possessor to possessor, for more than five centuries. The Francis Bacon believers at least had a known document to work upon—the Shakespeare texts. These delvers into Roger Bacon's intellectuals have first to convince the world that their manuscript is really the handiwork of the British monk. * * * Roger Bacon had the mental equipment for the sort of labor credited to him and he had some motive for concealing his discoveries in a cipher. * * *

PHARMACEUTICAL FORMULAS

PROPOSED FOR "UNOFFICIAL FORMULAS, A. PH. A."

The formulas heretofore published will be found in Volume I, JOURNAL A. PH. A., pp. 169, 366, 505, 637, 760 and 1307; Volume V, pp. 309, 422, 529, 631, 748, 862, 991 (see also p. 1129), 1126, 1265 and 1397; Volume VI, pp. 79, 194, 298, 393, 486, 563, 643, 729 and 823.

For list of committee members and c ommittees see Apra issue, p. 292. Suggestions for formulas, and comments on those published. are invited. They may be sent to a memberof the committee or to chairman J. Leon Lascoff, 1223 Lexington Ave., New York. N. Y.

CHOCOLATE TABLETS.

CONTRIBUTED BY BERNARD FANTUS, M. D.

The tablets for which the subjoined formulas are given are intended chiefly for children's medication and carry a dose suitable on an average for a child three years of age. These tablets require what might be called "cacao sugar" as the ingredient that permits extemporaneous compression of the powder in a tablet machine without preliminary granulation. Hence the formula for this is given first.

Formulas Nos. 684 to 697, inclusive.

CACAO SUGAR.

Spirit of Cinnamon, 10%.....	0.50 Cc.
Cacao, powdered.....	20.00 Gm.
Sugar, powdered.....	80.00 Gm.

Mix thoroughly by trituration in a mortar, and preserve in a well-stoppered bottle.

Note: If any difficulty be experienced in compressing this powder into tablets, the addition of a little of shaved paraffin will probably overcome the trouble.

TABELLAE FERRI DULCES.

Sweet Tablets of Iron.

Saccharated Ferrous Carbonate.....	13.50 Gm.
Cacao Sugar.....	16.50 Gm.

Mix by thorough trituration in a mortar and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE FERRI ET ARSENI DULCES.

Sweet Tablets of Iron and Arsenic.

Arsenic Trioxide.....	0.06 Gm.
Saccharated Ferrous Carbonate.....	13.50 Gm.
Cacao Sugar.....	16.50 Gm.

Mix by thorough trituration in a mortar and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE ACETPHENETIDINI DULCES.

Sweet Tablets of Acetphenetidin.

Acetphenetidin.....	6.00 Gm.
Alcoholic Solution of Saccharin, 3%.....	2.00 Cc.
Cacao Sugar.....	24.00 Gm.

Mix the acetphenetidin with the alcoholic solution of saccharin (in a hot mortar if in a hurry) and permit the alcohol to evaporate; then mix with the cacao sugar by thorough trituration in a mortar, and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE ARISTOCHINAE DULCES.

Sweet Tablets of Aristochin.

Aristochin.....	6.00 Gm.
Alcoholic Solution of Saccharin 3%.....	3.00 Cc.
Sodium Bicarbonate.....	1.00 Gm.
Cacao Sugar.....	23.00 Gm.

Mix the aristochin with the alcoholic solution of saccharin (in a hot mortar if in a hurry), permit the alcohol to evaporate. Then add the cacao sugar, and finally the sodium bicarbonate by thorough trituration in a mortar. Compress in a tablet machine, using 3/8 inch die and punches to make one hundred 0.30 Gm. tablets.

TABELLAE ACETYLAMINOSALOLI DULCES.

Sweet Tablets of Acetylaminosalol (Salophen).

Acetylaminosalol	6.00 Gm.
Cacao Sugar	24.00 Gm.

Mix by thorough trituration in a mortar, and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE ATROPINAE DULCES.

Sweet Tablets of Atropine.

Atropine Sulphate	0.03 Gm.
Cacao Sugar	30.00 Gm.

Mix the atropine sulphate with the cacao sugar by thorough trituration in a mortar, then compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE DIGITALIS DULCES.

Sweet Tablets of Digitalis.

Digitalis, No. 40 powder	0.80 Gm.
Saccharinated Solution of Tolu*	1.60 Cc.
Cacao Sugar	29.20 Gm.

Thoroughly moisten the powdered digitalis with the fluid. Place the cacao sugar upon a No. 20 sieve, now add the moistened powder, and pass it through the sieve repeatedly so as to sugar-coat the granules, as well as to secure thorough admixture. Compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE IPECACUANHAE DULCES.

Sweet Tablets of Ipecac.

Ipecac, No. 40 powder	3.00 Gm.
Saccharinated Solution of Tolu*	3.00 Cc.
Cacao Sugar	27.00 Gm.

Thoroughly moisten the powdered ipecac with the fluid. Place the cacao sugar upon a No. 20 sieve, now add the moistened powder, and pass it through the sieve repeatedly, so as to sugar-coat the granules, as well as to secure thorough admixture. Compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

*Saccharinated Solution of Tolu.

Tolu	2.0
Saccharin	2.0
Alcohol	100.0

TABELLAE HEXAMETHYLENAMINAE DULCES.

Sweet Tablets of Hexamethylenamine (Urotropin).

Hexamethylenamine	3.00 Gm.
Cacao Sugar	27.00 Gm.

Mix by thorough trituration in a mortar and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE SAJODINI DULCES.

Sweet Tablets of Sajodin.

Sajodin	6.00 Gm.
Cacao Sugar	24.00 Gm.

Mix the sajodin with the cacao sugar by thorough trituration in a mortar. Compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE TERPINI HYDRATIS DULCES.

Sweet Tablets of Terpin Hydrate.

Terpin Hydrate	3.00 Gm.
Cacao Sugar	27.00 Gm.

Mix by thorough trituration in a mortar and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

TABELLAE THYROIDAE DULCES.

Sweet Tablets of Thyroid.

Desiccated Thyroid Gland	6.00 Gm.
Cacao Sugar	19.00 Gm.

Mix by thorough trituration in a mortar and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.25 Gm. tablets.

TABELLAE ALBUTANNIN DULCES.

Sweet Tablets of Albutannin.

Albutannin	6.00 Gm.
Cacao Sugar	19.00 Gm.

Mix by thorough trituration in a mortar, and compress in a tablet machine, using 3/8 inch die and punches, to make one hundred 0.30 Gm. tablets.

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All articles appearing in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK, which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproduction of entire articles at moderate prices when such are desired.

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COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 20
(Abstract.)

WASHINGTON, D. C., MAY 31, 1921.

86. *Suggestion to consider the advisability of the employment of a full-time Secretary-Treasurer—Abstract of discussion:* L. E. Sayre favors that discussion be deferred to annual meeting. S. L. Hilton directs attention to the need of an Association home and that offices be located so that national legislation may be looked after; favors consideration of question by Executive Committee and report not later than next annual meeting; deems full-time Secretary-Treasurer advantageous. W. B. Day states he would not be candidate for full-time Secretary- Treasurer. Question involves more than consolidation of offices, important changes in the policies of the Association, amending of by-laws. Frederick J. Wulling does not, at this time, favor the employment of full-time Secretary-Treasurer; the Association should first have a home. R. A. Lyman favors the suggestion, states that the growth of the Association depends on having a full-time Secretary. Wm. P. Porterfield favors, provided the Association can afford it; should be discussed thoroughly at New Orleans meeting.

87. *National Botanic Garden (see Items 45, 49 and 53).* On May 9, 1921, the following communication from the Commission of Fine Arts was received through Secretary Day:

"Attached hereto is a statement of the Commission of Fine Arts in reply to the article which appeared in the Washington 'Star' on April 16, 1921 (clipping enclosed) concerning the Bill (H. R. 2166) introduced in the House of Representatives by Representative Langley which proposes extending the existing Botanic Garden at the foot of the Capitol into the Mall, or removing the Garden to East Potomac Park. The statement sets forth the futility of this plan and again emphasizes the importance of adopting the Mt. Hamilton site recommended by the Commission of Fine Arts for the proposed National Botanic Garden.

A wide-spread interest is developing throughout the United States among the scientific societies and botanic garden organizations for the establishment of the National Botanic Garden at Mt. Hamilton, and it is to be hoped that authorization for the site will be given by Congress at this session. It is expected that Senator Brandegee, who introduced Bill S. 4485 shortly after the Congressional Hearing on this project in May, 1920, will soon reintroduce the Bill with regard to the authorization for the Mt. Hamilton site. A copy of the Bill of Representative Langley and of the proposed Bill for the Mt. Hamilton site are enclosed, together with a print of the preliminary design for the National Botanic Garden.

I shall very much appreciate anything you may do to aid in this matter."

(Signed) C. O. SHERRILL,
Lieut. Colonel, Corps of Engineers,
Secretary and Executive Officer.

In reply, your secretary wrote as follows:

"Your letter of April 22nd, addressed to Wm. B. Day, Secretary of the American Pharmaceutical Association, has been forwarded to the undersigned, Secretary of the Council, as the Council is the body charged with handling the business of the Association during the interim between annual meetings.

In reply, I beg to call your attention to the fact that the Association has already gone on record in its correspondence with Mr. J. G. Langley in favor of the establishment of a National Botanic Garden of a size and nature (with respect to variations in soil, altitude, *et cetera*) which will permit of the successful propagation and growth of the greatest variety of plants possible in this climate. Speaking in behalf of the Association, I believe that I am within my rights in stating further that the Mt. Hamilton project meets these conditions more fully than any of the other sites under consideration at the present time. The plants used for medicinal purposes are so diversified in nature that the greatest variation in soil, altitude, *et cetera* will be required for their culture.

If there is anything the Association can do to be of immediate assistance in obtaining a favorable decision on the Mt. Hamilton site, do not hesitate to make it known. Would it be of any value to have a botanist or pharmacognosist of the Association compile a list of medicinal plants which might be grown in this garden, showing the variety of soil, *et cetera*, necessary?"

Immediately upon the receipt of my communication, the Commissioner of Fine Arts called by telephone and advised me that a list of medicinal plants as suggested would be of great assistance to them, not only in supporting their attitude on this piece of legislation, but for actual use in laying out these gardens.

This matter is now before you for suggestions as to the best way of securing such a list of medicinal plants.

A. G. DuMez, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 21.
(Abstract.)

WASHINGTON, D. C., June 14, 1921.

88. Motion electing applicants Nos. 480 to 506 carried.

89. Motion to appoint committee on resolutions, death of Prof. H. P. Hynson; same suggestion made re Dr. George B. Kauffman. Carried.

90. *Further discussion question employment full-time Secretary-Treasurer.* Jeannot Hostmann reports that New York Branch A. Ph. A., is opposed; before taking such a radical step half-time official should be given a trial.

He writes that he agrees with Secretary Day; he does not deem it wise to refer to Executive Committee. Should be discussed at New Orleans meeting, then publicity should be given before the question is brought up for final action.

91. *National Botanic Garden* (Items 45, 49, 53 and 87). L. E. Sayre favors coöperation. Speaking as a member of a committee on Food and Drugs, he hopes for aid in securing an authentic list of all non-official drugs of vegetable origin used in U. S., also would like to have statistics resource and supply.

92. A. G. DuMez nominates B. L. Murray of Rahway, N. J. for Chairman Committee on Standards of Drugs and Chemical Products, W. B. Day seconds.

A vote is being called for, but considered tentative if there is any adverse discussion.

93. *Election of active Members.* Applications for active membership:

No. 507, Louis Pontecorvo, 2053—1st Ave., New York, N. Y.; No. 508, Jarkof Albin Quarfordt, 52 N. Broadway, White Plains, N. Y.; No. 509, Frank R. Henderson, Buchanan, Va.; No. 510, Jason L. Russell, 3710 Van Dyke Ave., Detroit, Mich.; No. 511, Emmett E. Wagaman, 49 N. Main St., Chambersburg, Pa.; No. 512, John A. Borneman, 100 Amosland Ave., Norwood, Delaware Co., Pa.; No. 513, Sherman William Morrison, 1201 E. College St., Iowa City, Iowa; No. 514, Arleigh Hubert Albert, 500 N. Carrollton Ave., Baltimore, Md.; No. 515, Jas. Lewis Lowman, Millboro Springs, Va.; No. 516, H. Sheldon East, Appomattox, Va.; No. 517, Frederick Augustus Grazer, Sacramento Co. Hospital, Upper Stockton Road (Box 600), Sacramento, Calif.; No. 518, Sidney J. Lebolt, 175-177 Remsen Avenue, New Brunswick, N. J.; No. 519, Mabel Anna Bauer, 29 W. 36th St., Bayonne, N. J.; No. 520, Frank Alfred Ippolito, 2198 Second Avenue, New York, N. Y.; No. 521, Boyce L. Brannon, U. S. Naval Hospital, Key West, Fla.; No. 522, Sister M. Xavier, St. Mary's Hospital, Franklin St., Waterbury, Conn.; No. 523, Sister Mary Andrew Tobin, 1619 Milwaukee St., Denver, Colo.; No. 524, Sister M. Euphemia Donahue, 370 Collins St., Hartford, Conn.; No. 525, Garrett E. Andes, Timberville, Va.; No. 526, L. Catharine Cameron, 4th and Ascension Sts., Des Moines, Iowa; No. 527, Emma N. Belbot, Md. General Hospital, Madison & Linden Ave., Baltimore, Md.; No. 528, Philip Gustave Ebbecke, 550 Dauphin St., Mobile, Ala.; No. 529, Sister Mary Vincent, St. Mary's Hospital, Duluth, Minn.; No. 530, Kenion Adam Long, c/o U. R. Neil Drug Store, Graham, Texas; No. 531, Charles F. Slotter, 2959 N. 12th St., Philadelphia, Pa.; No. 532, Egil T. Olsen, Englewood Hospital, 60th & Green Sts., Chicago, Ill.; No. 533, Walter Theodore Boren, State Institution Pharmacist, Howard, R. I.; No. 534, Robert S. Sherwin, 771 Broad St., Newark, N. J.; No. 535, Sister Mary Pachomius, 941 Margaret Place, Shreveport, La.

A. G. DuMez, *Secretary.*

COMMITTEE REPORTS

SHALL WE REORGANIZE THE AMERICAN PHARMACEUTICAL ASSOCIATION?

(Second paper.)

By FRANCIS E. STEWART.*

My first paper on this subject, published in THE JOURNAL, March 1920, was commented upon favorably by President L. E. Sayre, who appointed a committee on reorganization and made me the chairman of it. My object in writing the paper was to protest against a suggestion made by some of the members who desire to convert the Association into a delegate body representing the entire drug trade. The object of this paper is to state some of the objections to such procedure and to suggest ways to make the present organization more effective.

First, what is the aim, and what are the purposes of The American Pharmaceutical Association?

According to the "Pharmaceutical Syllabus," published by the National Committee representing the American Pharmaceutical Association, The American Conference of Pharmaceutical Faculties and The National Association of Boards of Pharmacy, the answer is thus stated:

> "AMERICAN PHARMACEUTICAL ASSOCIATION. Its aim is to unite the educated and reputable pharmacists and druggists of America for seven important purposes: (1) To improve and regulate the drug market. (2) To encourage proper relations among druggists, pharmacists, physicians and the people at large. (3) To improve the science and art of pharmacy. (4) To regulate the system of apprenticeship and employment. (5) To suppress empiricism. (6) To uphold standards of authority in the education, theory and practice of pharmacy. (7) To create and maintain a standard of professional honesty with a view to the highest good and greatest protection to the public."

At least two facts of importance for consideration in relation to the suggestion concerning reorganization are brought out by the above authoritative statement of the aim and purposes of the American Pharmaceutical Association. They are, *first*, the term "pharmacy" as used in the statement has a very different meaning than that used in the common parlance. Pharmacy is a profession, not a commerical business.

The *second* fact brought into prominence by the above statement of the aim and purposes of the present organization is that pharmacists bear certain important professional relations to the medical profession and the public, which service differs in character from that of the ordinary merchant and tradesman. It, therefore, becomes quite important for us to consider the difference between the meaning of the terms profession, and commercial business, as used by members of the so-called learned and liberal professions, namely, theology, law and medicine. For, as clearly brought out in my first paper, true pharmacy as a science is part of medical science, and as a practice is part of medical practice.

Perhaps I can make the difference in meaning between *professionalism* and *commercialism* as here employed more clear to you by calling attention to the mottos "*caveat vendor*" and "*caveat emptor*," which mean respectively, "let the vendor beware," and "let the purchaser beware."

The principle underlying the motto "*caveat vendor*" is altruism; that underlying "*caveat emptor*" is egoism.

Maudsley, in his "Physiology and Pathology of the Mind," divides the people of the world into two great classes, the *altruistic* and the *egoistic*, or in common language, the unselfish and the selfish. Those people belonging to the former class are seeking to serve their fellow-man, and those belonging to the latter are seeking to serve only themselves. The former class may be

*Chairman Committee on Reorganization.

represented by *centrifugal* force which exerts itself from the center and, like the ever-widening wave created by the pebble thrown into the water, influences a larger and larger circle for enlightenment, and the latter class may be likened to *centripetal* force which exerts itself to appropriate everything to itself and give out nothing.

The same author points out that the line between intense egoism and insanity cannot be clearly differentiated, and the way to cultivate soundness of mind is to cultivate altruism or service to others.

It is, of course, admitted, that many business men are altruistic, and many professional men are egoistic, but we are not talking of individuals but of principles theoretically underlying the correct practices of the liberal professions on the one hand, and the practices of commercial business on the other.

Theoretically at least the physician's vocation is primarily to teach the people how to live in such manner as to keep well, theoretically the vocation of the business man is to make money, and some go so far as to say, "honestly if you can, but if you can't make money honestly, why, make money." This principle of business is recognized in law by the motto, "caveat emptor," which, as already stated, means, "Let the purchaser beware (that is, he buys at his own risk)." On the other hand the principle recognized as the proper one to follow in the practice of the liberal professions, theology, law and medicine, is embodied in the motto, "caveat vendor," let the vendor beware, for he claims to be a teacher and an authority, and expects the public to accept him as such and to give him credit for teaching the truth, the whole truth, and nothing but the truth when he expresses his opinion concerning the things taught.

We are now in the position to consider pharmacy as a learned and liberal profession in contradistinction to the commercial drug business.

To be recognized as a member of a liberal profession the pharmacist must be in position to teach. To teach what? To teach pharmacy? Yes, and something more than that; he must be in position to teach pharmacology and the pharmacologic arts. Now, what is "pharmacy?" What is "pharmacology," and what is meant by the "pharmacologic arts?"

The "Pharmaceutical Syllabus" defines pharmacy as "the science and art of preparing, preserving, compounding and dispensing medicines," and includes the term pharmacy in a definition of a wider scope as will be noted by referring to the following definition of the science of drugs and medicines:

Pharmacology: A recently coined definition would seem to confine it to pharmaco-dynamics, but as defined by the "Pharmaceutical Syllabus," pharmacology is "the science that treats of drugs and medicines; their nature, preparation, administration and effect; including pharmacognosy, pharmacodynamics, therapy-dynamics, pharmaceutical chemistry and pharmacy."

The pharmacologic arts are therapy, pharmaceutical chemistry and pharmacy.

When the above statement, and the definition of pharmacy given by the "Pharmaceutical Syllabus," are considered in the light of this definition of Pharmacology, it becomes perfectly apparent that those concerned in the creation and maintenance of the Syllabus had in mind the basic fact that true pharmacy and rational drug therapy are correlated and mutually dependent professions, and therefore the successful practice of the pharmacologic arts is dependent upon coöperation between the medical and pharmaceutical professions; also that proper medical and pharmacal service cannot be rendered the public until such coöperation is obtained, and by the public properly sustained.

Now what is meant by proper pharmacologic service, which, according to the facts recognized in these definitions, cannot be rendered by either pharmacists or physicians except when working in coöperation as practitioners of co-related and mutually dependent pharmacologic arts?

The first service as to its importance was the creation and maintenance of common standards for determining the identity, character and strength of the medicinal drugs, chemicals, and preparations of the same, used as medicines.

As stated by Remington:

> "The necessity for legalized standards to define the character, establish the purity, and regulate the strength of medicines is recognized by all civilized nations; and although all of the nations of the globe have not yet formally adopted national standards, in nearly every case where this has not been done

> it will be found that the standards of some other country are in use." These standards are known as pharmacopoeias. "*A pharmacopoeia*, in the modern acceptation of the word, is a book containing a list of medicinal substances, with descriptions, tests, and formulas for preparing the same, selected by some recognized authority."

The United States Pharmacopoeia was originally devised by the medical profession. The first revision was the work of a convention of physicians and surgeons; for the second revision a committee of revision was appointed and this committee "*was authorized to request the coöperation of the Colleges of Pharmacy of the United States, * * *. Valuable assistance was rendered the C mmittee by the Colleges of Pharmacy of Boston and New York; the Philadelphia College of Pharmacy presented a complete revision of the Pharmacopoeia, elabo ated with ability and great industry; the Committee accepted, after deliberate examination, nearly all the suggestions, and this caused delay in the issue of the work.*" (Italics mine—F. E. S.)

It is not my intention to relate the history of the evolution of the United States Pharmacopoeia. My object in referring to it is to call attention to the fact that the people of the United States possess what is considered to be the finest pharmacopoeia in the world *owing to coöperation between the medical and pharmaceutical professions.* And, what is of greater importance to all concerned is the fact that the very existence of true pharmacy and rational drug-therapy is practically dependent upon the pharmacopoeia. For that reason neglect of the pharmacopoeia on the part of physicians, pharmacists and the public at large is a subject meriting serious consideration.

That the Pharmacopoeia is neglected by all concerned is too well known to require the presentation of evidence to prove the fact. Why the Pharmacopoeia is neglected is worthy of consideration, but the question of "why" if properly answered would require hours of discussion. The reasons "why?" are basic, and largely commercial in character. In reply to the question, "Why do not physicians, pharmacists, druggists and manufacturers coöperate in promoting the use of the pharmacopoeia?" one of the answers received was: "When physicians, pharmacists, druggists, and manufacturers stop trying to grab the same dollar at the same time coöperation may possibly be obtained." Another answer which also reflects the commercial character relating to the reasons "why" was advanced against materia medica standardization of advertised materia medica products. As standardization is the object of the pharmacopoeia, this answer is also germane to the subject. The answer was: "Standardization means *leveling* of all materia medica products to common standards, thus taking away from commercial introducers the advantage to be derived from advertising their products as better therapeutic agents than those of their competitors."

But what the medical profession must know to treat the sick properly are the side effects, limitations, and comparative value of the newer materia medica products in their relation to each other and to the older and better known products employed as therapeutic agents in similar conditions. It is just this kind of levelization that the medical and pharmaceutical professions and the people at large must insist upon if we are ever to establish the pharmacopoeia as a guide in the use of drugs as remedial agents. Without guidance by these rules of common sense anarchy reigns in place of law, and the drug business becomes a menace to the public health.

The commercial drug business comes back with the answer "There is no law in therapeutics. Questions of therapeutics are at best questions of opinion, and one person has as much right to an opinion in regard to the therapeutic value of a medicine as another. Opinions relative to the therapeutic value of medicines rest on trial or experiment. What is known is known only by experience. This is the kind of knowledge the physician depends upon in the practice of medicine. The pharmacist and the self-medicator have the same source of knowledge to draw upon. Why then go to the physician? Buy a 'patent' medicine, or an 'ethical proprietary' and be guided in its use by the advertisement in the daily paper or magazine, or in the medical journal. The advertisement supplemented by the advertising circular contains all necessary information."

"But how about diagnosis?" the doubting layman asks. The drug trade answers: "Diagnosis, according to the dictionary is 'the distinguishing of a disease by means of its symptoms.' No profound knowledge of diagnosis is required for the patient to know that he has a cough. It is not necessary for the patient to go to the doctor and pay him for information already pos-

sessed. The doctor will prescribe a cough remedy. Why not go to the drug store and buy a cough remedy without going to the doctor?"

This kind of reasoning is well calculated to deceive and mislead the ignorant and unwary. It is founded upon the fallacy that so-called diseases are entities. Let me quote what Dr. Dock says on that subject. "We are all in the habit of thinking of diseases as if they had separate existences. In fact they are spoken of sometimes as entities—'beings without reference to distinguishing attributes or properties,' but in reality there are no such things—there are only people, or lower animals, or plants, with diseases. One cannot think clearly about diseases without thinking of the causes. Headache, for example, occurs from such dissimilar things as infectious diseases, like influenza, typhoid fever and smallpox; or it may come from disease of the eye, or ear; from meningitis, brain tumor, kidney disease, chronic digestive disturbance; nervous exhaustion and anemia or some other cause. Cough is equally misleading. It may come from a disease of the larynx, or bronchi, it may also come from a disease of the ear or pharynx, the tonsils, pleura, heart, stomach, or lower abdominal organs. A headache caused by inflammation of a sinus is a symptom. The pus or polyp observed on examination of the sinuses is a sign. From the symptoms and the signs the physician works up the complete picture of the disease, that is, the diagnosis."

People who are ignorant alike of pathology, diagnosis and the proper treatment of the sick, excuse the prescribing druggist, "patent" medicine advertiser and self-medicating public for neglecting the doctor on the ground that the doctor only guesses what is the matter with the patient, and prescribes without knowledge, and any druggist or layman can guess and prescribe just as well as the doctor. There is some justification for this contention. As stated by William J. Mayo, in his excellent paper on "The Medical Profession and the Public," appearing in the *Journal of the A. M. A.*, for April 2, 1921, "MacKenzie points out that medical treatment has always been in advance of knowledge, that treatment has been empiric, even experimental, and that knowledge has come later from the results of these unorganized attempts to palliate or cure the diseases of man. * * *We can hope that eventually knowledge will precede treatment and that treatment will be based on knowledge, and not, as heretofore, largely on empiricism."

And as for diagnosis, it is acknowledged by one of the most skillful diagnosticians that about fifty percent of his attempts are failures. In such cases all the physician can do is await developments and meet conditions as they arise. But there is a great difference between the potential of the educated and experienced physician in such cases, and the ignorant person who guesses, just as there is between the skillful mariner and the landlubber when called upon to find the way through an unknown channel. If it were not so a medical education would be useless, and the druggist would be as well qualified to treat the sick as the doctor. Furthermore, as stated by Mayo, the medical profession has long recognized the great value of the facts resulting from the work in clinical laboratories, and of late has also recognized the great practical value of the labors of the physiologist, the physicist and other heretofore cloistered departmental workers. The profession appreciates that the organization of departments of trained workers in special fields of medicine and allied sciences greatly aids in obtaining knowledge which permits a better interpretation of all the facts of the case by the diagnostician and brings knowledge closer to treatment. Consequently we have progress in diagnosis and treatment of disease on the part of the medical profession, while, in case of guess work by persons who are ignorant of the many branches of knowledge upon which the educated physician, on account of his education, is in position to draw upon, very little progress in knowledge is possible. Therefore the services of the prescribing druggist, who prescribes at short range without diagnosis, and the "patent" medicine manufacturer, who prescribes at long range without diagnosis, and the self-medicating layman who mistakes symptoms for diseases and prescribes on mistaken diagnosis, are not to be compared with the service of the medical profession in spite of the fact that physicians are often forced to prescribe without diagnosis and await the development of symptoms for guidance.

People who are not acquainted with medical history little realize the marvelous advances made in medical science within comparatively recent times. It is important that we do not lose sight of this. Permit me to call your attention to the following facts:

It was not so long ago that physicians as well as the people at large in a country, now standing high in civilization, believed that diseases were caused by demons, and the more disgusting the

medicine, the sooner would the demon leave the body of the patient and seek more congenial habitation. "Until 1617 such drugs and medicines as were in common use were sold in England by the apothecaries and grocers. At this period the compounds employed in medicine were often heterogeneous mixtures, some of which contained 20 to 70 or more ingredients.* * *"

In May 1618 the *London Pharmacopoeia* was issued by the College of Physicians. "Although other editions of the *London Pharmacopoeia* were issued in 1621, 1632, 1639, and 1677, it was not until the edition of 1721, published under the auspices of Sir Hans Sloane, that any important alterations were made. A great improvement was effected in the edition published in 1746, and, in the edition published in 1788 the tendency to simplify was carried out to a much greater extent."

Why were these ridiculous mixtures discarded? Why is it that physicians, pharmacists, druggists and manufacturers are not now recommending those who are sick to dose themselves with the same disgusting compounds used no longer ago than Shakespeare's time? The reason is to be found in the advancement of medical education. And by medical education I mean not only the medical education of the physician, but also the medical education of the pharmacist, druggist, manufacturer, and the people at large.

In my opinion the time is approaching when we can all look back at our present ignorance of the nature of disease, its causes, prevention and treatment, with the same wonderment we now have in regard to the ignorance of past generations.

How is this much to be desired consummation to be realized? It is to be realized by general medical education. The greatest factor in banishing ignorance in regard to the curative value of the disgusting nostrums of the past has been the enlightening force of general education. This enlightenment of past generations, so long in coming, resulted in the standardization of the materia medica by the establishment and maintenance of pharmacopoeias. Later on as the light spread to America the United States Pharmacopoeia was created, and, finally, the American people commenced to see the importance of enforcing pharmacopoeial standards by pure food and drug legislation, hence the passage of the Federal Pure Food and Drugs Act of June 30, 1916, and similar Acts by the several States which speedily followed. By this Act Congress provided a way to further enlighten the public by forcing medicine manufacturers to warn the people concerning the character of the medicines offered for sale by stating the presence of habit-forming drugs on the labels of medicines containing them. Further enlightenment caused the passage of the Sherley amendment making it a crime to lie in the advertising of medicines as well as in the labeling of them. Next came the narcotic laws, followed by the Federal Prohibition Law known as the Volstead Act. It is probable that the Volstead Act will soon be modified for the purpose of making it more practical as a remedy for the abuse of alcohol by legitimizing more completely its legitimate usage; but, in my opinion, and in the opinion of many competent observers, the day of the old-time saloon with its unmitigated evils, and also the times in which disguised whisky and narcotics were freely dispensed under the guise of medicines—are gone, never to return.

Then there is another and very important factor which should not be lost sight of in this process of education. I refer to the public health crusade—that remarkable wave of enlightenment which seems to be overflowing the entire civilized world, heightened by the reconstructive movement following the great world war. The fact that so many men were found physically unfit for military service has proved indeed an eye opener. The disabilities caused by improper living must be removed.

Smith, quoting Haven Emerson says: "We have won our way from an attitude of passive submission or acceptance of disease and disability as inflictions of fate, of some evil genius, or by the Gods of our own Divinity, through the self-respecting and upright position of self-defense against disease, using the weapons of science, until we are now moving aggressively forward attacking disease and determined to overcome it by all the resources of society as well as by assembling, co-ordinating, directing, with our knowledge of medicine and organized government, a continuous warfare upon all physical, biological, economic and spiritual handicaps against which man and child cannot successfully make progress alone."

Recently a complete change has taken place in the attitude of the enlightened public in regard to the correlation and importance of the three indispensable services—medical teaching,

preventive medicine and diagnosis and treatment.[1] The teaching of preventive medicine now takes the lead in the public mind as of more importance than the diagnosis and treatment of disease. The truth of the old adage "An ounce of prevention is worth a pound of cure" is commencing to be more fully realised. The limits of this paper will not permit detailed consideration of this great public health movement. It is by no means confined to the medical profession. This wave of public health teaching is spreading to other agencies possessing even greater influence than the doctor. The great life insurance companies have joined in the health crusade, and are sending out tons of literature to their patrons on this subject of health conservation. The National and State departments and boards of health, the American Public Health Association, also the American Association for the Advancement of Science, the Red Cross, the societies for organizing charities, the W. C. T. U., Y. W. C. A., Social Hygiene Association, and many other institutions have joined the movement. And now conferences are being held in various parts of the country to secure closer coöperation between these agencies to obtain greater efficiency.

What influence will this wave of enlightenment have upon the materia medica of the future? Its influence will doubtless be just as revolutionary upon the materia medica of the future as that which banished the various disgusting compounds of ancient history. That it will result in the complete disuse of medicines there is no good reason to believe. But enlightened people will no longer believe in diseases as entities and drugs as specifics. In a public lecture on "Health and Disease," by Prof. George Dock, M. D., of Washington University, St. Louis, from which I have already quoted, this well-known teacher gives the following advice on the subject which contains what I believe to be a hint of the answer to the question "What is to become of the materia medica of the future?" His advice is to the individual who would obtain and maintain good health, and is wittily stated as follows:—

> "He should in the first place select his grandparents and parents in such a way as to get himself the best constitution possible. He should live so as to preserve that constitution. He should know how to apply simple remedies for the trifling ailments that afflict one—to use a cathartic when he has eaten something indigestible; to dress a wound aseptically; to stop food when the stomach rebels. He should be so educated by his parents, his teachers, his school physicians, his school nurses, his city or village health officers, and in his college personal hygiene course, as to secure the greatest possible freedom from disease."

It is evident that Dr. Dock recognizes the "right of self-medication" possessed by the public, also the right and duty of the medical profession, as guardians of the public health, to educate the public on the subject of diagnosis, treatment, and preventive medicine.

And last, but not least, comes the subject of commercially introducing alleged new remedies by therapeutic advertising. Therapeutic advertising, no matter how honest the intent, unless supplemented by further information impartially stated, creates a fictitious demand for the thing advertised. This kind of advertising when employed in the dry goods business may do no special harm, but it is harmful when it relates to medicines, for unintentionally misleading statements may result in the permanent disability or the death of the patient.

As everyone knows, advertising as a general rule is "written to sell the goods," and the claims made are quite frequently biased, exaggerated, and purposely misleading. Such therapeutic advertising is pernicious, contrary to the spirit of the aim and purposes of the American Pharmaceutical Association and a menace to public health.

COMMENTS AND CONCLUSIONS.

It seems to me that the logical conclusion to be drawn from the above facts is that true pharmacy, as a science and art, and also as a successful vocation, is dependent upon coöperation between the practitioners of the arts of preparing medicine and applying the same in the treatment of the sick, namely, the medical and pharmaceutical professions; also that such coöperation can never be attained under a system of business having as its motto, "*caveat emptor.*"

The pharmacist to be recognized as a professional man, must be in a judicial position as an expert in drugs and a teacher. He must therefore adopt the motto, "*caveat vendor.*" He cannot

[1] W. H. Smith, M. D. "Adequate Medical Service for a Community," *Journal A. M. A.*, April 16, 1921.

at one and the same time be an advocate and a judge, and, therefore, when he advertises a medicine as a better therapeutic agent than that of a competitor, without furnishing evidence to prove it, he becomes an advocate, not a judge, and therefore loses his judicial position as an expert in drugs and a teacher of the truth about them.

The aim and purposes of the American Pharmaceutical Association as now organized are in the right direction. Reorganization for the purpose of placing the control of its affairs in the hands of a House of Delegates representing the entire drug trade, and therefore composed largely of business men engaged in the commercial introduction of alleged new remedies for disease, and in the creating of an artificial demand for them by advertising of the kind represented by the motto "*caveat emptor*," would be a complete reversal of the aim and purposes of the Association, and destroy all that remains of the professional spirit assumed to animate the organization.

REPORT OF THE COMMITTEE ON DRUG MARKET.*

Considering the many phases involved in the business of collecting, distributing, marketing and manufacture of drugs, pharmaceuticals and chemicals, it is rather remarkable that these products are of the high standard of quality generally found on the market. This fact is no doubt due, in large part, to the constant supervision and frequent examination that they are subjected to by manufacturers, distributors and users.

Owing to business depression, we are not able this year to give as much data as usual, but notwithstanding this condition, we feel that we are able to present for your consideration, numerous facts that will be of future value. It was thought that the business stagnation would cause such a competition among dealers, that there would be proportionately fewer rejections and that greater care would be exercised in the production of products generally found of inferior quality. Our experience has shown, however, that the quality during the past year was not marked by improvement over recent years, although we consider that it is generally satisfactory.

Each year, we find it necessary to criticize the carelessness or indifference of some producers of crude drugs; as usual, we found a number of shipments that were improperly labeled, such as, yellow cinchona that we found to be *Cinchona pallida*, a shipment of rosemary leaves that was found to be red rose leaves, and the substitution for valerian by an unidentified drug that closely resembled it. We also found a number of drugs that had been subjected to admixture with foreign substances; the most objectionable of which was the inclusion of belladonna leaves in the center of a bale of hyoscyamus leaves, probably to raise the alkaloidal content, and the presence of considerable *Rhamnus californicus* in cascara sagrada.

Carelessness in gathering is a frequent cause of inferior quality, as we found sarsaparilla root having the knotty crown still attached; wormseed containing practically no santonin; marshmallow root having an excess of periderm; quince seed that had a large proportion of discolored seeds, and elder flowers that were noticeably dirty.

As the result of carelessness in storing, we found some substances that were rendered unfit for use such as burdock root and skunk cabbage that were wormy; wild lettuce that was mouldy, and lupulin that had developed an objectionable odor.

The foregoing examples illustrate the need of constant supervision over the condition of drugs, and we hope that by bringing them to the attention of the members of such associations as this one, a gradual improvement will result.

As usual, your committee has availed itself of the opportunity to use the analytical files of the H. K. Mulford Co., and the Smith, Kline & French Company. The following material was examined by them during the period from June 1st, 1920, to June 1st, 1921.

ACID ACETYLSALICYLIC: One lot was returned because of its grayish yellow appearance. All other lots were of excellent quality. Reported by J. G. ROBERTS.

ACONITE ROOT, SPANISH: One lot was assayed and found to yield 0.21% ether-soluble alkaloids by the U. S. P. process for aconite root. Reported by GEO. E. ÉWE.

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*Pennsylvania Pharmaceutical Association, Philadelphia, June 1921.

ALCOHOL: One lot was of U. S. P. quality, except that it had a yellowish color and a molasses like odor. Reported by J. G. ROBERTS.

AMMONIA WATER 10%: One lot assayed 12.6% Ammonia (NH_3). This excessive strength would be productive of considerable trouble in the manufacture of certain pharmaceutical preparations. Reported by GEO. E. ÉWE.

AMMONIA WATER 26°: The return of one shipment was recommended, because of a yellow color andthe presence of a small amount of a dirty precipitate. Reported by J. G. ROBERTS.

ASAFOETIDA, GUM: Of the four lots tested one was not of U. S. P. quality, because it contained 2.5% less alcohol-soluble matter and 4.4% ash in excess of the U. S. P. standard. Reported by J. G. ROBERTS.

ASAFOETIDA, GUM: The eight lots examined assayed 71.3%, 41.9%, 70.5%, 58.8%, 58.4% and 23.3% alcohol-soluble matter, respectively. Reported by F. GLOOR.

BALSAM OF FIR, OREGON: A sample yielding the following data was examined: Optical Rotation, plus 2°25′. Optical Rotation of distillate, plus 6°14′. Boiling point, 150° C. to 345° C. Amount of distillate 80%. Acid number 108.5. Ester number 5.9. Saponification number 114.4. Reported by J. G. ROBERTS.

BALSAM PERU: Sample was not of U. S. P. quality, as it did not comply with the specific gravity requirement of 1.130 to 1.160 and the acid number requirement of not less than 56 nor more than 84. A complete examination was not made on account of the very evident undesirable quality of sample. Reported by J. G. ROBERTS.

BELLADONNA ROOT: The only lot examined contained .46% of alkaloids which is only a trifle above the U. S. P. standard of .45%. Reported by J. G. ROBERTS.

BLACK HAW: An average sample from twelve bags was found to contain 21.5% of foreign matter (stems, roots, rootlets, etc.) and one-third to one-half of finely broken material which gave it a dirty appearance. Black haw bark always contains an excess of foreign matter, but this lot contained more than has been found in other lots of recent years. The following amounts of foreign matter found in various shipments received since 1915 gives an indication of the quality of this drug.

July 1915, 50% and 40%; September 1915, 20%; December 1916, 23%; November, 1917, 11%; October, 1919, 12%, and November 1919, 14%. Reported by J. G. ROBERTS.

BENZOIC ACID: One lot contained a small proportion of greenish crystalline crusts which consisted of fused benzoic acid colored with copper benzoate, evidently a contamination from use of copper equipment for manufacture. Reported by GEO. E. ÉWE.

BENZOIN: The 19 lots examined assayed 74.6%, 74.5%, 73.3%, 70.4%, 70.2%, 71.2%, 68.5%, 70.7%, 57.7%, 75.9%, 68.2%, 77.4%, 76.1%, 71.9%, 71.8%, 71.1%, and 71.4% alcohol-soluble matter, respectively. Reported by K. SUTO.

BENZYL ALCOHOL: Practically all supplies are not completely soluble in water. The insoluble portion is very small in proportion, but greatly interferes with the production of brilliantly clear solutions. Reported by GEO. E. ÉWE.

BURDOCK ROOT: One lot was worm-eaten and appeared to have been taken from dead plants. Reported by G. A. SLOTHOWER.

CALCIUM CHLORIDE, COMMERCIAL: A qualitative examination of a sample showed it to contain the following impurities; sulphate, phosphate, sodium, traces of manganese and strontium, and much magnesium. Reported by J. G. ROBERTS.

CALENDULA FLOWERS: The determination of the amount of foreign matter in calendula flowers is rather difficult, on account of its naturally light and bulky condition and the relatively heavier and more compact condition of some of the foreign matter. Although the sample examined was mixed as thoroughly as possible, it appears that a uniform mixture is difficult to obtain, as two determinations yielded 1.5% and 4% respectively of foreign matter. In this particular instance the difference in results is due to the presence of a piece of twig, a whole flower head and a piece of porous earthy matter in one sample and which were not present in the other portion of the same sample. Sample complied with the N. F. requirement for identity and ash. Reported by J. G. ROBERTS.

(To be continued)

AMERICAN PHARMACEUTICAL ASSOCIATION FINANCES.

JANUARY 1 TO DECEMBER 31, 1920, INCLUSIVE.

BY HENRY M. WHELPLEY, TREASURER.

The annual report for 1918 (the fiscal and calendar years are coincident) was published in full in the Journal of the American Pharmaceutical Association for August, 1919, pages 654–667.

A volunteer report, covering the period from January 1 to August 15, 1919, inclusive, appears on pages 1070–1080 of the Journal of the American Pharmaceutical Association for December, 1919. This report discusses the four classes of securities and the various funds in detail and explains the association finances in general.

Each volume of the A. PH. A. YEAR BOOK contains historical sketches of the Association funds brought to date of publication.

The annual report for the fiscal year, 1919, will be printed in Volume 8 of the YEAR BOOK, which is now in press.

By vote of the Council and approval of the association, the annual reports of the treasurer are to be printed in full in the YEAR BOOK and in abstract in the JOURNAL (see JOURNAL for July, 1920, page 726).

The report for 1920 has been prepared and duly audited, as shown by the following report:

ST. LOUIS, April 26, 1921.

We have examined the books and records of the American Pharmaceutical Association in the office of the treasurer, for its fiscal year ended December 31, 1920.

Certificates from the depositories were received and reconciled in verification of the checking balances in the various banks.

All recorded cash receipts for the period covered were traced to deposits in banks, and all disbursements were found to be evidenced by properly signed vouchers and canceled checks on file.

Investment securities held by the Association were submitted for our inspection and found to be in order.

And we hereby certify that, in our opinion, the foregoing is a correct statement of the transactions of said association for the period named, and is also in accord with its books of account.

Yours very truly,
JEFF K. STONE & COMPANY,
Certified Public Accountants.

The funds in the hands of the treasurer on December 31, 1920, were as follows:

(a) Six Permanent Funds.
(b) Two Current Funds.
(c) Two Trust Funds.
(d) One Special Committee Fund.

For a general discussion of these funds, see Journal for December, 1919, page 1070.

THE A. PH. A. PERMANENT FUNDS, DECEMBER 31,1920

Life Membership Fund	$ 26,075.66	
Ebert Prize Fund	1,262.40	
Centennial Fund	3,557.85	
Endowment Fund	8,385.37	
Ebert Legacy Fund	4,923.32	
Research Fund	16,534.86	
		$ 60,739.46

CURRENT FUNDS

Bonds and Savings Account	$ 25,547.95	
Checking Account	6,535.68	
		$ 32,083.63

ASSETS

Permanent Funds	$ 60,739.46	
Current Funds	32,083.63	
		$ 92,823.09

HELD IN TRUST

Procter Monument Fund	$ 10,140.44	
Remington Honor Medal Fund	1,157.04	
		$ 11,297.48

SPECIAL COMMITTEE FUND

Soldier and Sailor	$ 456.12	$ 456.12

This fund to be transferred to current account.

TOTAL FUNDS HELD BY A. PH. A.

Assets	$ 92,823.09	
Held in Trust	11,297.48	
Special Committee Fund	456.12	
Total		$104,576.69

The bonds are listed at par value.

The Current Funds increased $951.88 during 1920. This was exclusive of the $2,020.84 to be transferred under Rule 14 into the Research Fund but inclusive of $456.12 balance in the Soldier and Sailor Fund, to be turned into the Current Fund.

The Permanent Funds increased $6,309.47 inclusive of the $2,020.84, to be transferred from the Current to the Research Fund.

Thus, the assets of the Association increased $7,261.35.

The Trust Funds increased $531.91, making the total increase of all funds amount to $7,793.26.

Of the income for 1920, that for dues was $14,697.50 and for interest on Current Account $648.45, making $15,345.95 or $785.78 less than the over-head expense of $16,131.73.

The income received by the treasurer from the JOURNAL was $9,466.67 and the amount paid out $10,271.36, or $804.69 more than the receipts. For a detailed statement of the expense and earnings, see the report of the editor of the JOURNAL.*

* To be submitted New Orleans Meeting A. PH. A.

GREENWICH VILLAGE HAS A RIVAL.*

BY CHLOE ARNOLD.

GREENWICH VILLAGE has a rival. And that rival is the Vieux Carré, which is the name for the old French village in New Orleans. Everything is set to make the village that we know a thing forgot en and out-classed as an abode for art. It will be, if these New Orleanais succeed in their designs on the Vieux Carré, which means the Old Square, and not Calabooza, as you might think. The old Spanish Calabooza is too cluttered with airplanes and the like to accommodate mere art, though their Parish Prison gives upon a pleasant street and has the same view as one of the most exclusive hotels.

The point is that down in Louisiana they are scrubbing and refurnishing the old French village and making it so attractive to artists that within the year those who have loved Greenwich Village may speak of it sadly as "The Deserted Village." Perhaps great painters from abroad will join the best of our own, and poets and authors will swarm from all over the world. Some hope that Mr. Tagore will be detained at home on business.

*_The New York Times Book Review and Magazine_, July 10, 1921. Permission granted to reprint. For illustrations referred to see JOURNAL A. PH. A., Volume X, February, March and April, 1921.

This new site of the league-long canvas and the camel's hair brush, is baited to catch the likely artist with several attractions. There's the Little Theatre; the Quatre Club, and a tea room called "L'Ombre de la Cathedrale," all very attractive and alluring. The shadow is supposed to be cast by the old St. Louis Cathedral. It is a good cathedral, all right, but it couldn't possibly cast a shadow that far. Which shows you how worthy a successor the Vieux Carré is for Greenwich Village.

The purpose of the Quatre Club is to entertain visiting celebrities, and for general social meetings of the artists and writers of the quarter, and the society leader sponsors from uptown. Among the distinguished guests has already been General Robert Georges Nivelle, when he visited New Orleans. It was one of those chilly days which reminds one of Paris when the mistral blows. But the Quatre Club was above all considerations of weather, and had the tables out on the walk, in real Paris style. By all accounts the affair was a decided success.

In defense of the Quatre Club, or just as good as defense, Henry James tells of his astonishment at meeting an old gondolier when he was visiting a fine château on the Cher in France. The man told him that he was supposed to give the Venetian effect in the flat Cher, and he was quite pleased with the job.

Of the romance of old days, the least possible survives in the New Orleans French Quarter now, but surely no place in the world has a group of buildings more charming and suitable for the abode of artists. When you first walk about the streets you're likely to be disappointed; for in order to know the real spirit of the Quarter, you have to be at leisure and rove around, under escort, stopping to visit here and there with a friendly shopkeeper, and to sit at your ease in the shade of a banana tree in some dusky courtyard.

In all railway and steamship literature you'll find a court yard on Royal Street, showing a little fountain. It really is there, only better than it looks in the picture. The figure is in a posture of drinking from a dry bottle, a warning for these days. And he is kneeling with a turtle under each knee. The turtles are fierce little creatures which look as if they'd stood about enough and expected to revolt at any moment.

That is one of the courtyards into which you stroll naturally, almost always by accident. But the others are not seen by the casual tourist, alone or with a paid guide. You must have lived here for some time and be acquainted with the people.

I know of one courtyard where hree fig trees, with their funny stubby twigs, grow, and upon the gallery above are rows of brilliant geraniums. The people are just poor Italians who have not been in the country long; but they show off their flowery Spanish courtyard as if it were an ancestral habi ation. It is said that there are only some half a dozen Creole families living down in the French Quarter now. Most of them have moved uptown. But there is one charming place on Royal Street, with great tall wooden doors. You ring, and the mistress of the house comes down to answer. You are admitted through a little door cut in the big one, and taken through the finest courtyard in the Quarter, where great palms planted a hundred years ago spread. There are twenty rooms in this house, and it is tenanted by three persons, the last of the family.

Not far away is a little pink house with a low balcony upon it, about one story from the street. There Patti used to sit of an evening to watch the fashionable world go by when she was in New Orleans singing at the French Opera House. This opera house burned down in December, 1919, and is very generally lamented. It was not only the headquarters for the city's music, but the meeting place of fashionable society, where the masked balls were held at carnival time. The low, slate and tiled-roof houses are built of brick, stuccoed and limed, and turned to all sorts of picturesque colors by time and the weather. Many lovely old houses have disappeared since Cable wrote his "Creoles of Louisiana." But there are still many fine ones to be seen and acquired.

A few people, business men, journalists, bankers, painters and au hors dwell down in the French Quarter. The rest are generally the city's poor. French is very generally spoken down there; English, indeed, is a foreign language. There's a pastry shop conducted by a once prima donna of the French Opera, and a bookstore in which all the French magazines and newspapers, as well as books, may be had.

Any a ternoon you see groups of tourists to whom a guide is expatiating some landmark. And all day the sight-seeing car ply their trade down the main thoroughfares of the city. Also, when

you walk down by St. Louis Cathedral, and to the French market, you are likely to see a class of pretty young girls from Newcomb College sketching. And you understand why Little Billy, in Du Maurier's immortal book, was far more interested in the pretty girls who copied in the Louvre than in the pictures.

These young ladies are under the guidance of Ellsworth Woodward. One of Woodward's stories is of how thirty years ago he heard that Inness was in town. He forthwith went to the old St. Charles Hotel out of reverence for the master, and for pure sociability. Mrs. Inness was being entertained in some great house that afternoon, and as Woodward was ushered into Inness's rooms the magnificent parade of the Mardi Gras was passing. Bands were playing and the whole town was agog. But George Inness had his trunk lid open, and in it a canvas on which he was painting one of those $25,000 pictures we read of now, and sometimes see if we're lucky. Inness didn't know and didn't care anything about the carnival; and the carnival didn't care anything about Inness.

There have been many unknown great men in New Orleans, and one great man was expected and didn't get there. That is the most touching story of hero-worship in all the annals of the people's hearts. The Creoles of New Orleans loved Napoleon even more after his downfall than in his triumphs. And a man named Nicholas Girod thought of how the Emperor could be rescued and brought here to stay awhile until his reinstatement. The Creoles regarded nothing as too good for Napoleon, neither the throne of France nor the best house in their own town.

So they built a fast yacht, and commissioned Dominique You and a crew of picked and desperate men to make the rescue. Napoleon died before the expedition could get under way; but the house, the finest in town then, was ready for his reception. They will tell you that every citizen who had a choice piece of furniture, or particularly elegant linen, costly silver, and rich Oriental rugs, gave toward furnishing the house for the hoped-for guest.

Now the dark courtyard is full of old lumber, and plump Italian babies with big black eyes and bouncing ringlets are at play. For the rest, it's merely a tenement, with shops and the like, but for all that the house will never be as other houses.

Dominique You was a pirate held in such esteem in the memory of the people as to make one reflect upon the folly of being good. Jean Lafitte is the leading pirate of the neighborhood, but if you walk in the old St. Louis cemetery even after all these years you'll occasionally find a wreath upon Dominique's tomb, showing that he, too, is not forgotten.

Among the men of old New Orleans, Don Almonaster is as admirable as any. He built the St. Louis Cathedral and gave it to the city.

The headquarters of the Louisiana Woman Suffrage Party are in the old Paul Morphy house, which may account for part, at least, of the unbeatable combination recently witnessed. The floors are chess boards, so that Morphy could dream out a game even when in conversation with friends. Also there is the Haunted House.

Peering through the gateway on one side we espied a group of villainous looking characters playing at craps. In a way this suggests the tam o'-shantered poets in the "Rabit Hole" in Greenwich Village. These Haunted House characters seemed to be asking aid of a saint whom they addressed familiarly as "Little Joe." I may say that the Haunted House is done over and made more comfortable for ghosts and the lodgers who now tenant it. The magnificent carved mahogany doors are varnished over in the usual dreadful manner of the improver. But the story about the house is that a society leader, Mme. Lalaurie, a woman who entertained Lafayette and all the great, and was to all appearances a woman of culture and high principles, was really nothing of the sort. For when the house got on fire one day they discovered many slaves in chains and undergoing all sorts of torture in the attic. The citizens arose and were going to mob the woman, but she escaped to France.

Then we come into Jackson Square—once the Plaza de Armas—where the St. Louis Cathedral, the old Spanish Cabildo, and the Calabooza occupy one side; the Mississippi River, in the distance, the other; and the Pontalba buildings, iron-balconied, red, quaint houses, each a square long, the other two sides.

Speaking of the Pontalba buildings is to remember the Baroness Pontalba, Don Almonaster's daughter, and how she was sought in marriage by one Henry McDonough. He was refused, and took it so hardly that he went into retreat, making more and more money and hating his fellow-

men, women and even children. But he left a great deal of money to the city schools, with a request that the children be aught to love his name. In Lafayette Square they have a bust of him, with two children looking adoringly up at his face. I do not know if the children now love him, but suppose it's easier than if he were alive.

As Robert W. Grafton, a painter who lives in New Orleans, said as we walked on toward his studio in Dumaine Street, the thin cumulus clouds roaming lazily in a sky of deepest blue, as if in no hurry to move on: "You can see there's everything here, only no people."

There may be people, who knows? Why, fifty years ago there dwelt there unknown and almost unnoticed a shabby young man of the name of Lafcadio Hearn. His clothes were poor and he was shy and out of place in such houses as he was asked to. The paper he wrote for didn't pay him much money, and if anyone regretted his departure from town it isn't on record. Perhaps there's some man of uch worth in New Orleans now as to make the quaint old scenery count as nothing by comparison.

THE UNITED STATES SUFFERS ENORMOUSLY FROM STANDARDIZED THOUGHT.

A British writer, St. John Ervine, states in an article contributed to the *Century Magazine* that the United States has too many laws. While we may take exceptions to portions of the article, most of the statements are reasonable, and interesting because they present the viewpoints of a foreigner. Druggists have long ago realized some of the conditions spoken of. He concludes that Americans have so many laws, most of which contradict one another, and they resemble the old woman who lived in a shoe. "They do not know what to do, and the result is government not by the fruits of experience, but by panic. One gets the feeling that when a legislative body in the United States is at a loss for employment, it passes a new law, chiefly of an interesting character, not because the new law is needed, but because people might think it was not fulfilling its function if it were not busily engaged in passing measures.

"The inevitable outcome of this tendency to make laws needlessly is that no one pays any more heed to law in America than he is obliged to pay. An American obeys the law when he cannot conveniently break it, and so it is that the thoroughly wicked man in the United States is not the man who infringes the law, but the man who exploits it. Concurrently with this bewilderment of law, this difficulty of knowing just where you are, there is the tendency, natural enough in the circumstances, for the people in power either to disregard the law altogether.* * *

"When you have a people who are governed in such a way that law falls into disrepute, then inevitably freedom of thought and movement become contracted. The mass of the people will accept things that they ought not to accept up to the point at which endurance breaks, and then they fly to violent remedies. * * * And when people cannot depend upon the laws of their country for protection, they develop timidity of spirit, the majority of them, or violence of spirit, the minority of them. The majority suppress their individuality, and the minority exaggerate it. On the one hand, we have the majority seeking for protection by doing exactly what every one else is doing; and on the other hand, a minority, seeking through violence, eccentricity and destructiveness to obtain an outlet for its energy.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: A. G. DUMEZ, *Chairman;* J. H. BEAL, CHARLES H. LAWALL, CASWELL A. MAYO, H. B. MASON, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress on Pharmacy, *ex-officio.*

Collaborators: C. HERBERT PACKARD, President, A. Ph. A.; WILBER J. TEETERS, President, A. C. P. F., H. C. CHRISTENSEN, Secretary, N. A. B. P.; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; CHARLES H. LAWALL, Chairman, Council A. Ph. A. The Chairmen of the Sections A. Ph. A.: A. G. DUMEZ, IVOR GRIFFITH, EDWARD SPEASE, ADAM WIRTH, CURT P. WIMMER and E. F. KELLY.

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Requests for assistance should be addressed, National Research Council, Information Service, 1701 Massachusetts Avenue, Washington, D. C.

MORE LIQUOR, LESS OPIUM IN CHINA.

According to a report to the Commerce Department from Consul-General William H. Gale at Hong Kong, more liquor is going into China as the use of opium falls off. The net revenue collected in Hong Kong from liquor duties and licensed warehouses, during 1920 was $779,000 compared with $749,000 in 1919. The revenue from the opium monopoly in 1920 was $4,300,000 as compared with $6,000,000 during 1919.

FROM PIMENTO TO VANILLIN.

The Department of Agriculture, in Jamaica, announces that an important trade secret has been solved in the extraction of vanillin from oil of pimento. During 1920 a small beginning was made by the Department in the production of pimento oil in the hope of extracting vanillin. The first output of pimento oil was sold in England to manufacturers of vanillin at 10s. per pound. Experiments have since resulted in the conversion of pimento oil made at the Government Laboratory into vanillin, but the researches have not as yet been completed, for the present yield is only about one half of what should be produced. It is confidently expected that this difficulty will be overcome.

SCIENCE COMING INTO ITS OWN.

Charles Frederick Carter in the *Scientific American* of July 9, in an article under above caption, states that: "It is one of the ironies of fate that a nation so little inclined to war, so given to industrial self-complacency, as the United States should owe so much to war as a stimulant to the scientific development upon which industrial progress is built. Yet history records that Lincoln requested the creation of the National Academy of Sciences to help solve problems vitally affecting the conduct of the civil war; and that more than half a century later Wilson asked that the organization founded on Lincoln's initiative should be expanded into the National Research Council to assist in mastering the technical difficulties encountered in the conduct of the greatest of all struggles. It is directly due to the efforts of this National Research Council that the activities of scattered research agencies have been coördinated and given fresh impetus pursuant to former Chairman Angell's position that it is essential that we conceive of research as the organized technique of science itself, working for its own propagation.

"Now that this great organization, embracing some forty scientific societies with memberships running into the thousands, is becoming more fully readjusted to peace conditions it promises to exert a more potent influence on industrial progress than it did on the conduct of the war; and that is saying much. Science is, indeed, coming into its own."

JOHN WESLEY'S KNOWLEDGE OF MEDICINE.

A. Mortimer, writing in the "Special Issue" of the *Chemist and Druggist*, June 25, 1921, states that in all references to John Wesley and his life-work, he has read, the knowledge of medicine possessed by Wesley seems to have been ignored. Mr. Mortimer presents a number of abstracts from "Primitive Physic: or an easy and natural method of curing most diseases," by John Wesley. These books were advertised to be sold *at the Rev. Mr. Wesley's Preaching-Houses in Town and Country*. The preface to the first edition is dated June 11, 1747; a bibliographer has ascertained that the book treats of 243 ailments and contains 725 recipes. The history of medicine is briefly traced in the preface and the following is taken from the article referred to: 'In the early days physic', says Wesley, 'as well as religion was chiefly traditional. Father handed down to son what he himself had in like manner received, concerning the manner of healing both outward hurts and the diseases incident to each climate, and the medicines which were of the greatest efficiency for the cure of each disorder. Then, when it was seen how the beasts would use certain natural remedies to cure their ills, they were tried for human beings with good results, and experience and physic grew up together. In addition to this knowledge, many accidental discoveries were made which led to the wider use of many hitherto unknown remedies. Hence rules for the application of these, and medical books were immensely multiplied, till at length physic became an abstruse science, quite out of the reach of ordinary men. Physicians, men who knew a little more about medicine than the average person, now were held in esteem, as persons who were something more than human. Profit attended their employ as well as honour; so they had now two weighty reasons for keeping the bulk of mankind at a distance, that they might not pry into the mysteries of the profession.' Wesley then goes on to show that the medical men of the time of which he is speaking insisted that a knowledge of anatomy, natural philosophy, and even astronomy and astrology were necessary to the understanding of the art of healing. They introduced complex medicines consisting of so many ingredients that it was impossible to know which wrought the cure."

ON THE NATURE AND COMPOSITION OF IRISH MOSS MUCILAGE.

Paul Haas contributed a paper on above subject to the British Pharmaceutical Conference, at its recent meeting. The article is printed in full on p. 485 of the *Pharmaceutical Journal and Pharmacist*, June 18, 1921. We reprint the following abstract: "A cold-water extract of Irish Moss differs in some respects from a hot-water extract. After exhaustive extraction with cold water, the residual weed yields to hot water a substance which is distinct from that obtained by means of cold water. The ordinary hot-water extract is a mixture of at least two substances having different physical and chemical properties. The emulsifying power of the cold and the hot extract is also markedly different. Emulsions of cod-liver oil prepared with hot extract are very stable, whereas those prepared with an equivalent strength of cold extract are relatively unstable. The gelatinizing power of carrageen is not affected by prolonged boiling in neutral solution or by sterilization in an autoclave, but is easily destroyed by heating in the presence of acid."

THE GROWTH OF DRUG AND ALLIED INDUSTRIES.

A preliminary statement of the 1920 census of manufactures with respect to the three related industries, druggists' preparations, patent medicines and compounds and perfumery and cosmetics has been prepared by the Bureau of the Census, Department of Commerce. We are making use of an abstract therefrom by the *New York Commercial* of July 13, 1921.

The figures are based upon the returns from 524 establishments primarily engaged in the manufacture of druggists' preparations in 1919, with products valued at $114,596,900; 2,468 in the manufacture of patent medicines and compounds with products valued at $212,185,700, and 570 in the manufacture primarily of perfumery and cosmetics to the value of $59,630,100.

At the census of 1914 the Industry "druggists' preparations" comprised 416 establishments with $48,009,700 in value of products; patent medicines and compounds, 2,903 establishments and $102,463,400; perfumery and cosmetics, 496 establishments and $16,899,100.

In the aggregate these classified industries involved 3,562 establishments in 1919 with products valued at $386,413,000 and 3,815 in 1914 with $167,372,000, an increase in value

of $219,041,000, or 131 percent. In addition, like products to the value of $23,357,100 were made in 1919 and $9,374,809 in 1914 by establishments in other lines of manufacture.

The production of biological products—serums, vaccines, toxins, etc.—in 1919 was valued at $15,876,400, an increase of 155 percent with respect to 1914; patent and proprietary medicines, $162,471,900, (a) for sale in unbroken unit packages to the general public $132,970,300, (b) ethical pharmaceutical specialties $29,501,600, an increase of 94.7 percent; pharmacuetical—tinctures, syrups, pills, tablets, etc.—$77,295,000, an increase of 187 percent, and perfumery, cosmetics and toilet preparations, $69,470,400, an increase of 263 percent.

The consumption of alkaloids, their salts and alkaloidal materials, as reported, cost $6,398,320 in 1919, comprising cinchona bark, 1,220,000 pounds, $450,300; quinine, 183,516 pounds, $2,718,238; coca leaves, 584,000 pounds, $292,800; cocaine, 516 pounds, $90,454; opium, 102,761 pounds, $956,354; morphine, 3,934 pounds, $635,912; caffein, 39,413 pounds, $312,285; strychnine, 16,414 pounds, $272,304; codein, 2,312 pounds, $296,392, and heroin, 702 pounds, $178,585. The industries used 2,980,500 gallons of grain alcohol costing $14,466,200, 796,900 gallons of denatured alcohol $524,000, and 73,200 gallons of wood alcohol $106,100.

PERSONAL AND NEWS ITEMS.

R. P. Fischelis has been elected Dean of the New Jersey College of Pharmacy, Newark, N. J., and also Professor of Practical and Commercial Pharmacy. He succeeds **Prof. P. E. Hommell**, who will continue as Professor of Materia Medica, Botany and Physiology. The activities of Dean Fischelis in pharmaceutical and chemical lines are well and favorably known to members of the Association.

Dr. Harvey W. Wiley, President of the last U. S. Pharmacopoeial Convention, has been seriously ill. He is recovering from a severe carbuncle on the back of his neck; for a time his condition was quite serious.

Col. Hubert Work is the new First Assistant Postmaster-General, recently president of the American Medical Association.

J. E. Bartlett, president of Parke, Davis & Company, sailed from New York June 30, for England, to be gone several weeks.

Chairman Hugo H. Schaefer, of the A. Ph. A. Transportation Committee, and Miss Elizabeth Louise Kist were married July 7. The latter is the daughter of Mrs. Theodore Kist, and a pharmacist for some time associated with the faculty of Columbia University, College of Pharmacy. Dr. Schaefer was local secretary of the New York meeting of the American Pharmaceutical Association. He is a member of the faculty of the institution referred to.

The American Pharmaceutical Association is indebted to **Cornelius Beukma** for a Dutch botanical book of 1696. Brief reference is made on page 308 of the April 1921 issue of the JOURNAL A. PH. A. The valuable book was donated by Mr. Beukma and sent from Denver by his son William Beukma, a member of the Association. The donor is shown on the summit of Mount Tamalpais, in 1915, during the San Francisco meeting of the American Pharmaceutical Association.

CORNELIUS BEUKMA, Dallas, Texas.

Mr. E. M. Holmes, who was beginning to get about on crutches, slipped and fell one day last week. On medical examination it was found that the humerus of the left arm was fractured and the shoulder and hip badly bruised, and as there is a good deal of extrava-

sated blood to be absorbed, and the humerus will take some time to knit together, Mr. Holmes fears that it will be October before he is able to travel. His many friends will sincerely sympathize with Mr. Holmes in this second serious casualty. The *Pharmaceutical Journal and Pharmacist*, July 2. Mr. E. M. Holmes has been an honorary member of the American Pharmaceutical Association since 1899. The members of the Association will regret to learn of this second serious accident and sympathize with Mr. Holmes.

Prof. Henry G. Greenish is the President of the British Pharmaceutical Conference, 1920–1921. His father, the late Mr. T. Greenish, filled the presidential chair in 1886. The President-elect is an honorary member of the American Pharmaceutical Association and the JOURNAL extends best wishes for a successful term of office. Professor Greenish was one of five foreign men of science upon whom in 1919 the University of Paris conferred the diploma of "*Docteur honoris causa*."

Members of the American Pharmaceutical Association have doubtless read, and with sincere regret, of the dreadful accident which resulted in the death of **Professor W. E. Stone,** of Purdue University, and sympathize with Mrs. Stone and son. Dr. Stone, on a number of occasions, exhibited his deep interest in Pharmacy and, we have no doubt, this extended to the Pharmacy Department of Purdue University. Dr. Stone, who was President of Purdue University, Lafayette, Indiana, with his wife had been missing since July 15, when they left the camp of mountain climbers for a three-day trip in order to condition themselves for the big Alpine Camp meet at Lake Ohara. Dr. Stone and his wife were both experienced Alpinists.

Joseph Jacobs, pharmacist, of Atlanta, Ga., was honored with the degree of Doctor of Science by the University of Georgia.

Elmer D. Morrill, director of the Philippine Bureau of Science has published a work of three volumes on Philippine botany. Systematic enumeration of all Philippine plants from earliest botanical records is given.

Dr. Stefan Minovici, Professor of Analytical and Pharmaceutical Chemistry at the University of Bucharest, is a leader in the Roumanian pharmaceutical activities. He is founder and editor of the *Roumanian Bulletin of Chemistry*, and it is due to his efforts that the Ministry of Education has recognized the pharmaceutical faculty as part of the medical faculty. He is an ex-president of the Roumanian Pharmaceutical Association. He holds the degree of Doctor of Chemistry of Berlin University, and is one of Emil Fischer's pupils.

A. B. Adams, chief of the permit division of the Federal prohibition force, has resigned. Dr. Adams addressed the American Pharmaceutical Association and has contributed to the pages of its JOURNAL.

Walter G. Campbell, formerly assistant chief of the Bureau of Chemistry, succeeds Dr. Carl L. Alsberg. Mr. Campbell has been in the Bureau since 1907. He is a native of Kentucky, and a graduate of the University of Kentucky.

Dr. W. W. Skinner, Chief of the water and beverage laboratory of the Bureau since 1908, becomes assistant chief. He is a native of Baltimore, and an alumnus of Maryland Agricultural College and George Washington University.

Dr. Alfred S. Burdick succeeds the late Dr. W. C. Abbott as president of The Abbott Laboratories. Dr. Burdick is a graduate of Rush Medical College. He is a member of various Chemical, Medical and Pharmaceutical Associations, among the latter, the American Pharmaceutical Association.

Editor Ivor Griffith, of the *American Journal of Pharmacy* is recovering from a serious surgical operation; complications which developed created some doubt as to his recovery. He is now convalescent, but the advisability of undertaking a long journey is questioned and he may not be able to attend the New Orleans Convention. Mr. Griffith was looking forward to the meeting with more than usual interest on account of being chairman of the Section on Practical Pharmacy and Dispensing.

OBITUARY.

Members of the American Pharmaceutical Association sympathize with their fellow-member **Thomas D. McElhenie** of Brooklyn, N. Y. in his bereavement; Mrs. McElhenie, his beloved life-companion of many years, died on Sunday, July 3, 1921, in her seventy-second year. Funeral services were held at the family residence, 266 Ryerson Street, Brooklyn, on Tuesday, July 5. The body was laid to rest at Wooster, Ohio.

Mr. McElhenie joined the American Pharmaceutical Association in 1872; his interest in the promotion of pharmacy is evidenced by the many contributions to its publications, membership in the various associations and activity in them.

Dr. Wallace Calvin Abbott died at his home in Chicago, July 4, aged 64, from chronic nephritis. He was born in Bridgewater, Vt., October 12, 1857. His early education was obtained in schools of Vermont, and Dartmouth College. He graduated in medicine from the University of Michigan in 1885. Following his graduation in medicine he engaged in general practice but shortly began the manufacturing of alkaloidal granules, later forming the Abbott Alkaloidal Company which developed into a general pharmaceutical manufacturing company now known as the Abbott Laboratories. Dr. Abbott founded the *Alkaloidal Clinic* devoted to the publication of material relative to alkaloidal therapy and now published as the *American Journal of Clinical Medicine*. He was also the author of several books on the practice of medicine with alkaloidal products.

Peter A. Mandabach, founder of the National Association of Drug Clerks, and for ten years its secretary-treasurer, was instantly killed July 6 while entering an elevator to go to his office in Chicago.

He was born at Massilon, Ohio, September 3, 1865, and had a varied experience in the retail, education and organization branches of the drug trade.

Mr. Mandabach was twice married, his first wife dying some years ago. He leaves a widow, a daughter, and a son.

JAMES EDWARD BRENNAN.

James E. Brennan, for many years a member of the Rhode Island Board of Pharmacy, and for nine years its secretary, died at his home in Pawtucket, R. I., after a long illness. He was born October 8, 1859 in Pawtucket, where he lived all his life. Recently, ill health compelled his retirement from the drug business. He joined the American Pharmaceutical Association in 1909, was a member of a number of pharmaceutical and business organizations, and one of the incorporators of the Rhode Island College of Pharmacy. He took an active interest in the Young Men's Christian Association of his home city. He is survived by Mrs. Brennan.

SOCIETIES AND COLLEGES.

THE NEW ORLEANS MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The names of the Section Officers of the American Pharmaceutical Association will be found on page 397 in June issue of the JOURNAL; the papers are still coming in, and they are waiting for yours. Among the addresses and papers for the Section on Commercial Interests are the following:

"The Louisiana Drug Store under Federal Regulations," by Hon. Jess Johnson, Louisiana Federal Prohibition Director. "Business Methods in the Suburban Pharmacy," by Fred W. Ames. "Separation of Pharmacies not Necessary," by Robert P. Fischelis.

Additional papers should be sent to Secretary Charles W. Holzhauer, 53 Spruce Street, Newark, N. J.

Chairman Ivor Griffith requests that those desiring to contribute to the Section on Practical Pharmacy and Dispensing, address him at 145 No. 10th Street, Philadelphia, Pa. A general invitation is extended.

While the request is made for these Sections, all the others can take care of many more papers. Address yours to the Chairman or Secretary of the Section for which it is intended.

HOTEL RATES IN NEW ORLEANS—MAKE YOUR RESERVATIONS EARLY.

GRUNEWALD HOTEL.

Main Building.

Room without bath, 1 person	$2.00
Room without bath, 2 persons	3.00
Room and bath, 1 person	3.50

Room and bath, 2 persons	5.00
2 connecting rooms and bath, 2 persons	6.00
2 connecting rooms and bath, 3 persons	7.50
2 connecting rooms and bath, 4 persons	8.00

Annex.

Room without bath, 1 person	$3.00
Room without bath, 2 persons	4.00
Room and bath, 1 person	5.00
Room and bath, 2 persons	7.00
Front room and bath, double or twin beds, 1 person	6.00
Front room and bath, double or twin beds, 2 persons	8.00
2 connecting rooms and bath, 3 persons	12.00 to 14.00
2 connecting rooms and bath, 4 persons	14.00 to 16.00

ST. CHARLES HOTEL.

European Plan Rates.

Room with detached bath, 1 person	$2.00 up
Room with private bath, 1 person	3.00 up
Room with detached bath 2 persons	4.00 up
Room with private bath, 2 persons	6.00 up

Parlor Suites from $10.00 upwards.

HOTEL DE SOTO.

Rooms with bath, single	$5.00
Rooms with bath, 2 persons	7.00
Rooms without bath, single	3.00
Rooms without bath, 2 persons	5.00

PLANTERS' HOTEL.

Rooms without bath, per day	$2.50 up
Rooms with private bath, per day	3.50 up

HOTEL MONTELEONE.

Single rooms without bath, per day	$2.00 up
Double rooms, without bath, per day	3.50 up
Single rooms with bath, per day	3.50 up
Double room with bath, per day	5.00 up

LAFAYETTE HOTEL.

Rooms with private bath, one person per day	$3.50 up
Rooms with use of bath, one person, per day	$2.50 and $3.00

GENERAL PROGRAM (TENTATIVE) FOR THE NEW ORLEANS MEETING.

ALL MEETINGS IN GRUNEWALD HOTEL.

Monday, September 5

9:30 A. M. National Association Boards of Pharmacy.
9:30 A. M. Louisiana State Pharmaceutical Association.
9:30 A. M. First Council Meeting.
2:00 P. M. National Association Boards of Pharmacy.
2:00 P. M. Louisiana State Pharmaceutical Association.
2:00 P. M. American Conference of Pharmaceutical Faculties.
8:00 P. M. National Association Boards of Pharmacy.
8:00 P. M. Louisiana State Pharmaceutical Association.
8:00 P. M. American Conference of Pharmaceutical Faculties.

Tuesday, September 6

9:00 A. M. Second Council Meeting.
10:00 A. M. National Association Boards of Pharmacy.
10:00 A. M. American Conference of Pharmaceutical Faculties.
10:00 A. M. Trip through Audobon and City Parks for the Ladies.
2:00 P. M. First General Session of the Association.

A meeting of the Committee on Nominations will be held immediately following the adjournment of the General Session.

4:00 P. M. Ladies' Reception under the Auspices of the Ladies Committee of the Local Association.
8:00 P. M. President's Reception, Gubernatorial and Municipal Welcome and Ball.

Wednesday, September 7

10:00 A. M. Seeing New Orleans—Auto Ride.
12:00 M. Luncheon.
2:00 P. M. First Session Scientific Section.
2:00 P. M. First Session Section on Education and Legislation.
2:00 P. M. First Session Section of Practical Pharmacy and Dispensing.
2:30 P. M. Trip through Latin Quarter for Ladies.
3:30 P. M. First Session House of Delegates.
7:30 P. M. Third Council Meeting.
8:30 P. M. Second General Session of the Association.

Thursday, September 8

9:30 A. M. First Session Historical Section.
9:30 A. M. First Session Commercial Section.
9:30 A. M. Second Session Scientific Section.
10:00 A. M. First Session Women's Section.
11:00 A. M. Second Session House of Delegates.
11:00 A. M. Second Session Section on Education and Legislation.
2:00 P. M. Luncheon, Members and Guests.
4:00 P. M. Boat Ride on the Mississippi.
7:30 P. M. Fourth Council Meeting.
8:30 P. M. Third Session Scientific Section.

8:30 P. M. Joint Session American Conference Pharmaceutical Faculties, National Association Boards of Pharmacy, and Section on Education and Legislation.
9:30 P. M. Dance in the Cave.

Friday, September 9.

9:30 A. M. Second Session Historical Section.
9:30 A. M. Second Session Commercial Section.
9:30 A. M. Second Session Practical Pharmacy and Dispensing.
9:30 A. M. Second Session Women's Section.
12:00 M. Alumni Luncheons.
2:00 P. M. Card Party for the Ladies.
2:00 P. M. Council Meeting (Reorganization).
3:30 P. M. Final General Session of the Association.
7:00 P. M. Banquet.

AMERICAN PHARMACEUTICAL ASSOCIATION OFFERS GRANT FOR RESEARCH.

The AMERICAN PHARMACEUTICAL ASSOCIATION has available a sum amounting to $360 which will be expended after October 1, 1921 for the encouragement of research.

Investigators desiring financial aid in their work will communicate before September 1, with Prof. H. V. Arny, chairman A.Ph.A. Research Committee, 115 West 68th St., New York, giving their past record and outlining the particular line of work for which the grant is desired.

THE ANNUAL MEETINGS OF NATIONAL DRUG ASSOCIATIONS.

The convention of the National Association of Retail Druggists will be held in Denver, September 19 to 23. The Albany is Headquarters Hotel. There is work for all of the National Organizations of the various drug interests; all of them have given service to their membership and the drug trade in general, while serving and protecting the public. The American Pharmaceutical Association thanks the pharmaceutical publications for their coöperation and valuable assistance, welcomes the members of related organizations and wishes them success, and in that spirit—the gladness to be of service, rejoicing in the success of others—best wishes are extended to the bodies meeting during September. The National Wholesale Druggists' Association will be held at Atlantic City, September 26–29, with headquarters at Hotel Traymore.

NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES, NEW YORK CITY, DURING WEEK OF SEPTEMBER 12.

Every variety of exhibit appealing to technical men will be in evidence at the seventh National Exposition of Chemical Industries.

The date of the exposition has been set for the week following the general meeting of the American Chemical Society and that of the Society of Chemical Industry, which are to be held in New York during the week of September 5. Chemists from many foreign countries are planning to be present.

Dr. Charles H. Herty, editor of the *Journal of Industrial and Engineering Chemistry*, is chairman of the advisory committee in charge.

NORTHWESTERN PHARMACEUTICAL BUREAU ORGANIZED.

The Northwestern Pharmaceutical Bureau, representing pharmaceutical trade and professional interests of Minnesota, Iowa, North Dakota, South Dakota, Wisconsin, Nebraska and Montana, was organized early in June at a meeting held in St. Paul, Minn. The purpose of the bureau is to further the enactment of prerequisite laws; to amend existing pharmacy laws so as to secure a different classification of assistant and apprentice pharmacists; and to perform work generally beneficial to pharmacy.

E. L. Newcomb, of Minnesota, was elected temporary president of the new organization. J. A. Pool, of South Dakota, is vice-president, and Al Falkenhainer, of Iowa, is executive secretary.

A CONFERENCE OF THE PHARMACEUTICAL COMMITTEE OF REVISION.

For the first time in the history of the revision of the United States Pharmacopoeia, a meeting of the entire Committee was called during the period of revision following the Convention. This is the development of the policy suggested to the last Convention as an improvement in the method of revision.

At the close of the Convention in May, 1920, the members of the Committee were called into conference, and even at that time, when there was no well-defined program to follow, an organization was accomplished which made it possible to proceed immediately with the active revision.

The first year having passed, it was believed that the time had come for a person-

al conference whereby conclusions would be reached on many subjects which were under discussion, and the Board of Trustees made the necessary appropriation to cover expenses. The conference had a dual purpose. Not only were many decisions reached which would have required months of correspondence by the usual method, but they are more likely to be correct, because of the opportunity for thorough discussion. Then too, the fact that the members again had the privilege of meeting each other and of gaining a more intimate acquaintanceship was in itself a large factor in the conference, and will continue to be in the subsequent work of the Committee.

The second great advantage of the conference was the stimulation in the actual work of revision by the knowledge that reports must be ready by a definite time. Six months before the conference, all chairmen had agreed to complete the preliminary stages of revision and the Sub-committee on Scope was in a position to reach conclusions which would otherwise have been impossible.

The first day, Friday, July 1st, was devoted to a series of Sub-committee conferences. Each Sub-committee had previously prepared a program and sent it to its Sub-committee members and auxiliary members. The time and place of the meetings had been announced and the conferences were started promptly, continuing throughout the afternoon and evening. By careful planning the fifteen Sub-committees were all enabled to hold conferences within the day, and all reported their current problems settled or decided as far as possible.

On the following morning, a meetin of the General Committee was held, an many subjects of general interest discuss and acted upon by the Committee.

It was announced that representatives of the Committee had recently visited the office of the Federal Prohibition Commissioner, Mr. Roy A. Haynes, and that he and his assistants had expressed much gratification over the proposed coöperation between the Department and the Committee of Revision on all future questions in which Pharmacopoeial alcoholic preparations are involved.

The primary purpose of the visit was to consult the Department on the Tincture of Ginger ruling (T. D. 3092) and it is believed that in a short time the unsatisfactory present status of double-strength Tincture of Ginger will be corrected.

A Committee was also appointed to take up with the Board of Trustees the recommendation of the Pharmacopoeial Convention, that a conference on international standards be called, if possible, before the completion of the Tenth Revision of the U. S. P.

Mr. Frank E. Eldred, a member of the General Committee, was elected a member of the Executive Committee and Chairman of the Sub-committee on Proximate Assays to succeed Dr. Charles E. Caspari, who had resigned because of demands of his personal business.

An announcement was made of the authorization by the Board of Trustees of the use of the U. S. P. IX text for translation into the Chinese language. It is understood that this will be accepted by the Government officials in China and become the Pharmacopoeia of China, First Edition.

It was also announced that research work on Pharmacopoeial problems by individual workers could, upon special request, be released for publication.

Many questions were discussed which related specifically to the detailed problems of revision and which cannot be published at this time because of their being in an indeterminate stage and not yet ready for publication.

More than forty members were present at the conference, some having come from as far as Seattle and Salt Lake City, and the utmost interest was evinced in all conferences and discussions.

The meetings were held on the Roof Garden of the Bellevue-Stratford, Philadelphia, and meals were served in the conference room, so that a maximum time was available for the work of the Committee and intense heat at this season of the year could be ignored by those at the meeting.

E. FULLERTON COOK,
Chairman.

OFFICERS OF STATE PHARMACEUTICAL ASSOCIATIONS, 1921–1922.

(*Continued from p. 486, June issue.*)

Secretaries of Associations are asked to make corrections and send in list of officers, and name of next convention city.

ALABAMA.

President, Lawrence C. Lewis, Tuskegee.

First Vice-President, J. A. Edwards, Anniston.

Second Vice-President, T. R. Frazier, Opelika.

Secretary, W. E. Bingham, Tuscaloosa.

Treasurer, S. L. Toomer, Auburn.

Gadsden was selected as the place for holding the next meeting.

ARKANSAS.

President, W. J. Conery, Lonoke.

First Vice-President, T. E. Morris, Little Rock.

Second Vice-President, Adolph Evers, Nashville.

Secretary-Treasurer, Miss Mary A. Fein, Little Rock.

Little Rock was selected as the place for holding next year's meeting.

CONNECTICUT.

President, Frank A. Sisk, Norwich.

First Vice-President, Ernest L. Gyde, Waterbury.

Second Vice-President, Samuel H. Williams, New Haven.

Secretary-Treasurer, P. J. Garvin, Middletown.

FLORIDA.

President, W. G. Perry, Miami.

First Vice-President, J. G. Gerig, Ocala.

Second Vice-President, J. R. West, Jr., Tarpon Springs.

Secretary-Treasurer, J. H. Haughton, Palatka.

GEORGIA.

President, Jabe Stamps, Thomaston.

First Vice-President, Herman C. Shuptrine, Savannah.

Second Vice-President, F. E. Bergstroem, Valdosta.

Third Vice-President, J. T. Selman, Atlanta.

Secretary, T. A. Cheatham, Atlanta.

Treasurer, T. C. Marshall.

Tybee Island, Savannah, was selected as the place for holding the 1922 meeting.

INDIANA.

President, B. M. Keene, Indianapolis.

First Vice-President, R. H. Kuss, South Bend.

Second Vice-President, J. W. Weiss, Hammond.

Third Vice-President, J. T. Butler, Knightstown.

Secretary, W. A. Oren, Indianapolis.

Treasurer, Frank H. Carter, Indianapolis.

The 1922 meeting will be held in Culver.

MICHIGAN.

President, John G. Steketee, Grand Rapids.

First Vice-President, Herbert Baker, Allegan.

Second Vice-President, Claude Jones, Battle Creek.

Secretary, Louis V. Middleton, Grand Rapids.

Treasurer, E. E. Faulkner, Middleville.

MISSISSIPPI.

President, P. K. Thomas, Tupelo.

First Vice-President, W. B. Kelly, Jackson.

Second Vice-President, J. A. Moss, Biloxi.

Secretary-Treasurer, A. S. Coody, Jackson.

Biloxi was chosen as the place for holding the next meeting.

MISSOURI.

President, Fred H. Swift, St. Louis.

Honorary President, Charles Roll, Kansas City.

First Vice-President, W. E. Bard, Sedalia.

Second Vice-President, M. J. Ulber, Kansas City.

Third Vice-President, Ambrose Mueller, Webster Groves.

Permanent Secretary, H. M. Whelpley, St. Louis.

Treasurer, William Mittelbach, Boonville.

Local Secretary, H. C. Tindall, Excelsior Springs.

Assistant Secretary, Samuel G. Becker, St. Louis.

Excelsior Springs was chosen as the place for the 1922 meeting.

NEW JERSEY.

President, E. T. N. Stein, Montclair.

First Vice-President, William H. McNeill, Paterson.

Second Vice-President, Max Fried, Newark.

Secretary, Jeannot Hostmann, Hoboken.

Treasurer, Edgar R. Sparks, Burlington.

Lake Hopatcong was chosen as the place for the next meeting.

NEW YORK.

President, Herbert G. Wright, Syracuse.

First Vice-President, Jacob Diner, New York City.

Second Vice-President, Arthur H. Reimann, Buffalo.

Third Vice-President, George R. Christ, Brooklyn.

Secretary, Edward S. Dawson, Syracuse.

Treasurer, Frank Richardson, Cambridge.

OKLAHOMA.

President, Clarence Pullen, Muskogee.

First Vice-President, C. I. Hartman, McAlester.

Second Vice-President, H. S. Caldwell, Oklahoma City.

Secretary-Treasurer, H. S. Shackelford, Wynnewood.

Oklahoma City was selected as the 1922 convention city.

PENNSYLVANIA.

President, Josiah C. Peacock, Philadelphia.

First Vice-President, F. J. Blumenschein, Pittsburgh.

Second Vice-President, E. J. C. Grohman, Butler.

Secretary, Louis Saalbach, Pittsburgh.

Treasurer, F. H. E. Gleim, Lebanon.

Buena Vista Springs was chosen as the place for holding the next meeting.

TEXAS.

President, W. Arthur Skillern, Dallas.

First Vice-President, William Collins, Amarillo.

Second Vice-President, W. H. Wentland, Manor.

Secretary-Treasurer, W. H. Cousins, Dallas.

Home Secretary, J. W. Graham, Austin.

Fort Worth was chosen as the 1922 meeting place.

UTAH.

President, Harry Coombs, Salt Lake City.

First Vice-President, Edward Johnson.

Second Vice-President, Clark Watson.

Secretary, E. C. Smith, Salt Lake City.

Treasurer, Eugene E. Corn.

Salt Lake City was chosen as the 1922 meeting place.

VIRGINIA.

President, J. E. Jackson, Tazewell.

First Vice-President, Harry Orchard, Lynchburg.

Second Vice-President, S. C. Brooks, Washington, D. C.

Secretary, A. L. I. Winne, Richmond.

Treasurer, Miss Maud Lambert, Roanoke.

Natural Bridge was selected as the place for holding the 1922 meeting.

WEST VIRGINIA.

President, F. C. Kramer, Parkersburg.

First Vice-President, H. L. Potts, Grafton.

Second Vice-President, H. O. Baer, Wheeling.

Third Vice-President, J. W. Hill, Sistersville.

Secretary-Treasurer, P. H. Kelly, Montgomery.

THE PHARMACIST AND THE LAW

"A MEDICAL TRAVESTY."

In the Senate the 1921 vintage of Volstead legislation is being described as "a medical travesty." The description fits perfectly. Senators Lodge, Wadsworth, Knox and Williams are referring to "Old Doctor Congress" as the latest authority on dosages. That is exactly what the Volstead Anti-Beer Bill proposes.

These Senators are discovering what the House discovered. The House closed its eyes and voted for it just the same. Congress is about to tell the physician that, despite his years of study, his beliefs and his professional judgment to the possible contrary, a half pint of spirits is all any patient needs or should or must have within any ten-day period.

The vanguard of prohibition is unmoved by protests that this will fill graves. Testimony to the effect that liquor did save many influenza victims is brushed aside. That whisky is needed in affections like pneumonia to save the patient in the dreaded collapse that comes at "the turn" is ignored. That, conceivably, it may be needed in some quantities is anathema.

The trend is that if physicians cannot find some drug other than liquor that will give about the same results they and their patients must get along without such stimulants. The "drys" have made up their mind that liquor is not necessary in the practice of medicine. Their actions indicate this.

While some Senators believe this latest legislation is unconstitutional, that will not halt the bill. The "revolt" amounts to but little or nothing except to call public attention again to the sweep and reach of the "extra-dry" program. There was never a more effective lobby than that maintained by the "drys" or a Congress more acquiescent than the present Congress.

And now that Congress is to set itself up as an authority on the administration and dosage of drugs, will it proceed to fix the amount of morphine that may be administered and the quantity of novocaine, strychnine or even

ipecac, quinine and "KI" that may be prescribed?

Just when may the "dosage tables" for the guidance of physicians and pharmacists in the administration of paregoric, Epsom salts and castor oil be expected? Or will Congress go in unreservedly for "drugless healing"?—Editorial, *Philadelphia Public Ledger.*

FRAUDULENT PRESCRIPTIONS.

The retail drug trade has been called upon by Prohibition Commissioner Haynes for coöperation with the authorities in an effort to check the situation arising from the passing of fraudulent physicians' prescriptions for liquor. In a statement regarding the matter, Mr. Haynes says: "In the past month I have received several communications from directors calling my attention to the appearance in their States of fraudulent physicians' prescription blanks.

"In detecting the offenders our only hope lies in the faithful coöperation of the retail druggists. I have noticed that some directors have circularized the retail druggists in their States in regard to this matter. I now wish that all directors at an early date would notify all retail druggists in their States to be more alert in the detection of forged prescription blanks, and to do all in their power to apprehend persons attempting to pass such blanks.

"Believing in the integrity of the retail druggists, I do not think that any of them would wantonly or knowingly engage in the practice of honoring fraudulent prescriptions, but I do feel that they should be cautioned in regard to this matter now before there is a noticeable increase in the issuance of these spurious prescriptions."—*The Druggists' Circular.*

NARCOTIC FIELD FORCES SEPARATED FROM PROHIBITION AGENTS.

The narcotic field force of the Internal Revenue Bureau has been entirely separated from the prohibition forces, and narcotic investigations are to be conducted through 12 divisions in the United States and one in Hawaii, Commissioner Blair announces. This change is one step in the reorganization of the prohibition field forces, whereby the 12 prohibition departments have been abolished and the investigative work placed under the various State prohibition directors. The change with respect to narcotic work, it is believed, will result in greater efficiency in handling the illegitimate drug traffic, and also has its administrative advantages.

These narcotic divisions will remain the same as the old supervising Federal prohibition agents' departments with the exception of the Little Rock Division, from which the fourteen counties of Texas, now in that division, will be transferred to the El Paso Division, whereby the whole of the State of Texas will be within the El Paso Division. The various divisions will be designated by the name of the city in which headquarters are located; namely, Boston Division, Chicago Division, etc., except Hawaii, which will be known as the Hawaiian Division. The officer in charge of each division will be designated as Narcotic-Agent-in-Charge. All correspondence and reports from Narcotic-Agents-in-Charge will hereafter be signed by them in that capacity and forwarded direct to the commissioner's office for attention of Narcotic Division, and in view of the fact that all narcotic matters in that office are now handled in one division, the forwarding of duplicate copies of reports should be discontinued.

All matters pertaining to the administration of the narcotic laws coming to the attention of prohibition directors or collectors of internal revenue, which were heretofore taken up with Supervising Federal Prohibition Agents, should hereafter be referred to the Narcotic Agent in Charge of the division wherein the prohibition director or collector of internal revenue is located, and a thorough coöperation among these officers in the enforcement of the narcotic laws will be expected.

METRIC SYSTEM BILL INTRODUCED IN SENATE.

A bill similar to the one before the House has been introduced in the Senate by Senator Ladd, of North Dakota, which provides for the use of the metric system after a period of ten years in commercial transactions where weights and measures are involved. It is stated that over 103,000 petitions from leading national and State associations, firms and individuals urging Congress to secure the advantage of the general use of metric weights and measures for the people of the United States are on file in the Department of Commerce.

JAMAICA GINGER AN INTOXICATING BEVERAGE IN MASSACHUSETTS.

In an opinion in an action involving an alleged violation of the State prohibition law

through the handling and sale of Jamaica ginger, Justice Carroll, in the Massachusetts Supreme Judicial Court, held that the offense was not the intention of the dealer, but his act and verdict of guilty was warranted by the showing that the defendant sold or kept for sale an alcoholic preparation "used so extensively for drinking as to become a beverage."

The court held further that "the fact that the preparation may be used as a medicine is no excuse for its sale if it is in reality an intoxicating beverage prohibited by law," and that "evidence tending to show that the Jamaica ginger was an intoxicating beverage, was commonly used as such, was admissible."—*Oil, Paint and Drug Reporter.*

BOOK NOTICES AND REVIEWS.

Chemical Reactions and their Equations. By Ingo W. D. Hackh, Ph.C., A.B. P. Blakiston's Son & Co., Philadelphia, Pa., publishers. 138 pages. Price, $1.75 net.

It is stated in the preface of this book that it was "written in order to supply students with necessary material and to expound the general principles of balancing equations" and that it should be studied, to the best advantage, in connection with some good text.

The balancing of equations is perhaps the most common difficulty encountered by students of chemistry, yet little or no effort has been made to publish a book which takes up this phase of chemistry by itself. It is obvious then that the value of a book of this type should appeal to all students of chemistry.

The book opens with a chapter on symbols and thoroughly describes their use as applied to atoms, molecules and ions. The second chapter takes up the different types of chemical formulas and, besides going into the nomenclature of the various chemical compounds, offers an extensive explanation of valence and its application and a discussion of the principles of oxidation and reduction. The next two chapters are devoted to equations, the first taking up those equations showing no change in valence and the other, those in which oxidation and reduction are involved. Both classes of equations are explained in detail and illustrated by a number of examples. The fifth chapter describes the several conditions and influences which have to do with the control of chemical reactions, grouping these agencies into three classes; namely, those under mechanical control, thermal control and electrical control. In the remaining sixth chapter more than two hundred equations, representing all types of reactions, are given. These are divided into twelve type groups, each group being explained by examples. This gives the student an unusual opportunity to study equations by association and comparison.

An excellent feature of the book is a list of questions and problems found at the close of each chapter. These offer plenty of drill upon the subject and enable one to drive home, by practical application, the important points of the preceding chapter.

The book closes with a valuable appendix composed of the following: 1. A table or key to the nomenclature of chemical compounds. 2. A list of the elements arranged according to their electro-motive force. 3. A brief discussion of the periodic system. 4. A solubility table for chemical compounds. 5. A table of type methods for the preparation of salts, and finally, a systematic index and glossary.

With all its commendable features, it is unfortunate that this book, like many other new ones, contains a considerable number of errors. While most of these are not very serious and probably would not escape detection by an experienced reader, at the same time, they are apt to lead those that are inexperienced very far astray.

The author of this book has succeeded in meeting a long needed requirement among the works on chemistry and presents his subject in an original and praiseworthy manner. It is a book which should be welcomed by all students of chemistry as an unusual aid to them in acquiring a clear understanding of what is so often a troublesome phase of the subject.

E. J. HUGHES.

Pertinent Facts on Latin American Medical Trade is the title of a brochure which presents some interesting and valuable data to those who desire a better acquaintance with our Latin American neighbors. The book opens with a short discussion of "The Opportunity for Trade with Latin America" with particular reference to the Latin American physician as a consumer and to the means of "selling" him. Following this are individual maps of each country and important information such as

geographical features, railroads, postoffices, money, leading cities, hospitals and dealers in drugs, instruments, apparatus, etc. A chapter on "Ways of Handling Business" is quite informative and contains paragraphs on making shipments, direct advertising, banks, help in getting dealers, etc. Another chapter is devoted to "Observations on South America" by Dr. William J. Mayo of Rochester, Minnesota, who made an extensive tour through the various countries. He tells his experiences in an interesting manner and gives concrete facts that should be of special interest to those who are looking for export business in medical and hospital lines. The booklet is issued by the American Medical Association, 535 North Dearborn Street, Chicago, and we are informed that a copy will be mailed to anyone interested.

Some Microchemical Tests for Alkaloids. By Charles H. Stephenson, Scientific Assistant, Bureau of Chemistry, United States Department of Agriculture. Including chemical tests of the alkaloids used, by C. E. Parker, assistant chemist U. S. Department of Agriculture, Bureau of Chemistry. 27 plates and 110 pages, 1921. J. B. Lippincott Company, Philadelphia. Price, $4.00.

This little book is the result of work begun by the author in December, 1907, and continued during intervals until the date of publication. The author outlines briefly the character of the work on crystalline precipitates described by others and gives references to the original articles.

The scheme for the identification of alkaloids is then given which is followed by a table showing the best and second best tests for each alkaloid. Detailed descriptions of tests for each of 51 alkaloids then follow. The results of tests for the authenticity and purity of the alkaloids used in the investigation by C. E. Parker, 27 plates, each with 6 photomicrographs and a table of microchemical reactions of 51 alkaloids with 35 reagents by the author complete the work.

The size of the book gives no idea of the great amount of work involved in collecting the data found between its covers.

In the description of the tests, one is favorably impressed both with the simplicity of style and the conciseness. The photomicrographs are clear and serve as a valuable aid in explaining the crystals described.

Since the appearance of "Beiträge zur Mikrochemischen Analyse Einiger Alkaloide und Drogen" by A. Grutterink in 1910, little has been published on the microchemical study of alkaloids and that, more or less fragmentary. This new work, involving more microchemical tests than have heretofore been published in any one volume of which the writer is aware, is, therefore, to be welcomed as a valuable handy reference.

It should prove a desirable asset in the laboratories of all drug analysts, pharmacognosists, and pharmaceutic chemists.

HEBER W. YOUNGKEN.

PUBLICATIONS RECEIVED.

New and Nonofficial Remedies, 1921, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1921. Cloth. Price, postpaid, $1.50 Pp. 418+XXXII. Chicago: American Medical Association, 1921.

"New and Nonofficial Remedies contains descriptions of proprietary medicines which are offered to members of the American medical profession. These descriptions are critical and trustworthy. They are based in part on investigations made by, or under the direction of, the Council on Pharmacy and Chemistry and in part on information supported by evidence submitted by the manufacturer or his agent. Statements made by those interested in the manufacture or marketing of preparations must be supported by substantiation evidence or conform to generally accepted facts before such statements are accredited in the acceptance of the article for N. N. R. 'This volume contains descriptions only of those proprietary and nonofficial products which are in accord with the principles underlying the rules for the acceptance of products formulated by the Council. These principles provide that the quantitative formula of the article must be declared, the therapeutic claims made in advertising (or in marketing) the article must be true and the preparation must have, or give promise of having, therapeutic value.

"A feature of the book which is of especially practical value is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each are preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles com-

pare the value of the products included in the group with similar pharmacopoeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

"New and Nonofficial Remedies is revised thoroughly each year. In the present edition, especial pains have been given to the introductory articles on local anesthetics and on arsphenamine preparations and on radium and its application in surgery and in medicine.

"Under References to Proprietary and Unofficial Articles not found in N. N. R. are listed references to published articles dealing with preparations which have not been accepted. These include references to reports of the Council on Pharmacy and Chemistry, to reports from the American Medical Association Chemical Laboratory and to articles appearing in the Propaganda for Reform Department of the Journal A. M. A."

HYGIENIC LABORATORY BULLETINS.

Bulletin No. 114, June, 1920—Index-Catalogue of Medical and Veterinary Zoölogy. Subjects: Roundworms (Nematoda, Gordiacea, and Acanthocephalia) and the Diseases they Cause. By Ch. Wardell Stiles and Albert Hassall. The extent of the work is indicated by its 886 pages; the authors' names occupy 2 pages; the names of journals consulted, 21 pages; the alphabetical list of specific and subspecific names of Roundworms, cross referenced to genera and subgenera 137 pages; and the alphabetical list of subgeneric, generic and supergeneric names of Roundworms, with list of species and subspecies, and list of diseases, more than 700 pages.

Bulletin No. 121. The Generic Names of Bacteria. By Ella M. A. Enlows, Bacteriologist. A bulletin listing all of the names, so far as it has been possible to obtain them, used in literature to define genera of bacteria. The author's description of these genera is briefly given when such description could be obtained. The type species only, or at any rate an organism which seemed most representative, has been included under the genera, except where it is doubtful just what the author did have under consideration. In those cases several species are included so that at least some idea of the genus in question may be ascertained. A list of the species mentioned in the bulletin is appended.

Bulletin No. 122. I. Deterioration of Typhoid Vaccine. By G. W. McCoy and Ida A. Bengston.

II. Standardization of Gas Gangrene Antitoxin. By Ida A. Bengston.

III. Potency of Bacteria Vaccines Suspended in Oil (Lipovaccine). By Ida A. Bengston.

Bulletin No. 124. I. Differentiation between various strains of meningococci by means of agglutination and the absorption of the agglutinin tests. By C. T. Butterfield and M. H. Neill.

II. The Tropin Reactions of Antimeningococcus Serum. By Alice C. Evans.

III. Effect of Freezing and Thawing upon the Antibody Content of Antimeningococcus Serum. By C. T. Butterfield.

IV. The Fermentation Reactions and Pigment Production of Certain Meningococci. By Clara E. Taft.

V. Studies on the Lethal Action of some Meningococci on mice with special reference to the protective properties of Antimeningococcus serum. By M. H. Neill and Clara E. Taft.

Bulletin No. 126. I. Trinitrotoluene Poisoning: Its Nature, Diagnosis and Prevention. By Carl Voegtlin, Charles W. Hooper and James M. Johnson.

II. The Toxic Action of Parazol. By Carl Voegtlin, A. E. Livingston and Charles W. Hooper.

III. Mercury Fulminate As a Skin Irritant. By A. E. Livingston.

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